

AUGUST  
1947

# CHEMICAL PROCESSING PREVIEW

*In this issue*

102 Articles Covering

NEW SOLUTIONS of  
PLANT PROBLEMS

MATERIALS HANDLING

DEVELOPMENTS in  
PRODUCTION MATERIALS

PROCESS INSTRUMENTS  
and CONTROLS

PRACTICAL IDEAS  
ADAPTABLE to PROCESSING  
MACHINERY and EQUIPMENT  
DEVELOPMENTS



Micro-engineering plant—5 to 12 litre scale—  
provides operating data for full production  
operations of organic chemicals or vinyl resins.

From Elemental Fluorine...

# SULFUR HEXAFLUORIDE



## A General Chemical Research Development +

### SULFUR HEXAFLUORIDE

Formula:  $SF_6$   
Molecular Weight: 146.06  
Melting Point:  $-50.8^\circ C$   
Sublimation Temperature:  $-63.8^\circ C$   
Critical Temperature:  $45.6^\circ C$   
Critical Pressure: 540 p.s.i.a.  
Vapor Pressure:

Temp. ( $^\circ C$ )	Pressure (p.s.i.a.)
-80	5
-50	34
-20	102
+10	240
+40	481

In Sulfur Hexafluoride, General Chemical Research makes another important contribution to fluorine chemistry. This stable dielectric gas is the first commercial chemical produced from elemental fluorine to be offered Industry... and fore-runner of many similarly-made fluorine compounds awaiting introduction.

Sulfur Hexafluoride was discovered by Moissan and Lebeau in 1900 as the product of combustion of sulfur in fluorine. It has been found to be remarkably inert and to possess exceptional thermal stability. These characteristics,

together with its splendid electrical properties, have led to its present use as a gaseous dielectric in high-voltage equipment.

The physical data presented here may suggest other applications worthy of prompt investigation for your products and processes. For commercial quantities, experimental samples, or more detailed technical information, contact General Chemical Company, Research & Development Division, 40 Rector Street, New York 6, N. Y. Please use business letterhead when writing.

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## "That's Interesting"

### 650 Pound Plastic Part Used in U. of C. Atom Smasher

A 650 pound plastics, the largest ever produced by the General Electric plastics division will be used as a component part of the University of California's newest atom smasher. Together with nine additional plastic parts it will form the vacuum chamber of the atom smasher. This contribution to the synchrotron design consisted of seven rings and three vacuum manifolds made of low-pressure laminated construction to form the vacuum chamber in which the electrons are accelerated.

The plastic rings were made of layers of glass fibers bonded with a polyester resin. A special varnish was used for the manifold construction.

### Chemical Contributions to Farm Progress

Livestock benefits when phenothiazine is used to control internal parasites; production of poultry — and eggs — rises when "Delsterol" Vitamin D 3 fortifies the feed; treatment of seed corn with "Arasan" seed disinfectant helps produce good stands; fungicides prevent disease in the vast and valuable field and truck crops.

Chemical weed killers and a new powerful rodenticide further expand the list of products available to the American farmer. For example, du Pont, in one group alone — insecticides — manufactures a score of formulations. (Summarized from du Pont Magazine for April 1947.)

### Process Concentrates Skim Milk to 25% of Its Original Volume

Simple, low cost machinery, developed by Atlantic Research Associates, Newtonville, Mass., makes it possible to concentrate skim milk on the farm to about 25% of its original volume for marketing. The powdered milk made by this new process is white, acceptable in taste, and as soluble as commercially drum dried milk. A report is available from the Offices of Technical Services, U. S. Dept. of Commerce, Washington 25, D. C. at a cost of \$3.00 for microfilm or \$8.00 for photostat.)

### Radar Unit Records Speed of Cars on the Highway

Radar equipment has been perfected that can measure the speed of any object which has appreciable area and motion. Developed by the Automatic Signal Div. Eastern Industries, Inc., Norwalk, Conn., to determine the speed of cars on streets the device may also have many other applications. It eliminates the necessity of using tubing across the highway. The equipment weighs only 45 pounds and can be operated from a standard 6 volt automobile storage battery or a 120 volt AC current. The vehicle's speed is read directly on the linear scale of the instrument's meter. A graphic recorder may be connected. The operating zone extends for about 150 feet in front of the transmitter-receiver unit.

### Those Comedians Must Be Good Salesmen

Employment of around 35,000 production workers and payment of over 937 million dollars in taxes on its product in one year are evidence of the magnitude of the cigarette industry. The most modern cigarette machine turns out each minute 1,250 cigarettes of standard size, exactly  $2\frac{3}{4}$  inches long. (Domestic Commerce Nov. 46).

### Mammoth Rubber-lined Tanks Shipped in One Piece

The longest rubber-lined tank to be shipped in one piece were recently exported by the Manhattan Rubber Div.—Raybestos—Manhattan, Inc. to South America, where they will be used in a steel mill. Complete with removable sectional fume hoods, each tank measured 62 feet long, 7 feet wide and 6 feet high.

(Continued on next page)

When inquiring specify CP 2109 . . . see information request blank, pgs. 2-3



## "That's Interesting"

### Treat Raw Sugar with Sodium Chlorite

Sodium chlorite inhibits fermentation in raw sugar and exerts slow bleaching action when used in a process developed at National Bureau of Standards. It promises substantial savings as there is considerable loss by bacterial action in transit and storage.

It is pointed out that the sodium chlorite solution can be applied with standard spraying equipment. The sodium chlorite solution can be applied at the point where the raw sugar is centrifuged before it is packed to remove as much of the molasses as possible adhering to the sugar crystals. Care, of course, must be taken in handling, storing and using sodium chlorite. (National Bureau of Standards, Washington 25, D. C.)

### High Acetyl Cellulose Acetate Has 56% Combined Acetic Acid

An improved type of cellulose acetate technically called high acetyl has gained wide acceptance because it possesses excellent dimensional stability making it acceptable for a wider range of plastic applications than regular cellulose acetate.

High acetyl cellulose acetate gets its name from the fact that the percentage of combined acetic acid is 56% or higher as compared with approximately 53% in standard pre-war acetate. Tests, conducted under ASTM conditions have shown that the heat and moisture resistance of cellulose acetate plastics articles improve as the percent of combined acetic acid is increased. These properties are also influenced by the type and amount of plasticizer used. The new type cellulose acetate plastic is being used for motor housings for vacuum cleaners, portable mixers; also for table radios and toothbrush handles. (Hercules Powder Co., Wilmington, Del.)

### Development in Cold Riveting

A development under consideration in cold riveting equipment is a pinch-bug riveter which will permit the cold-driving of rivets any place where hot rivets can be driven. At present, cold riveting can be done only with a frame riveter. (From Fasteners, Vol. 4, No. 1 — American Institute of Bolt, Nut & Rivet Mfrs., Hanna Bldg., Cleveland, Ohio.)

### Anti-static Compound for Plastics

An anti-static compound for plastic sheets and molded parts is easily dipped, brushed or sprayed. This is a non-inflammable liquid which is easily removed by washing with water. (Merix Chemical Co., Wrigley Bldg., Chicago, Ill.)

(Continued on third cover)

For more information on product at right, specify CP 2110  
... see information request blank between pages 2-3.

# Where "Lab" Research gets its Shakedown Test

This pilot plant (and hundreds more like it) is where laboratory research gets its shakedown test. For it is in the pilot plant that the answer to the procedure for maximum yield on a commercial basis is found.

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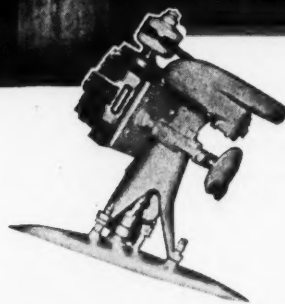
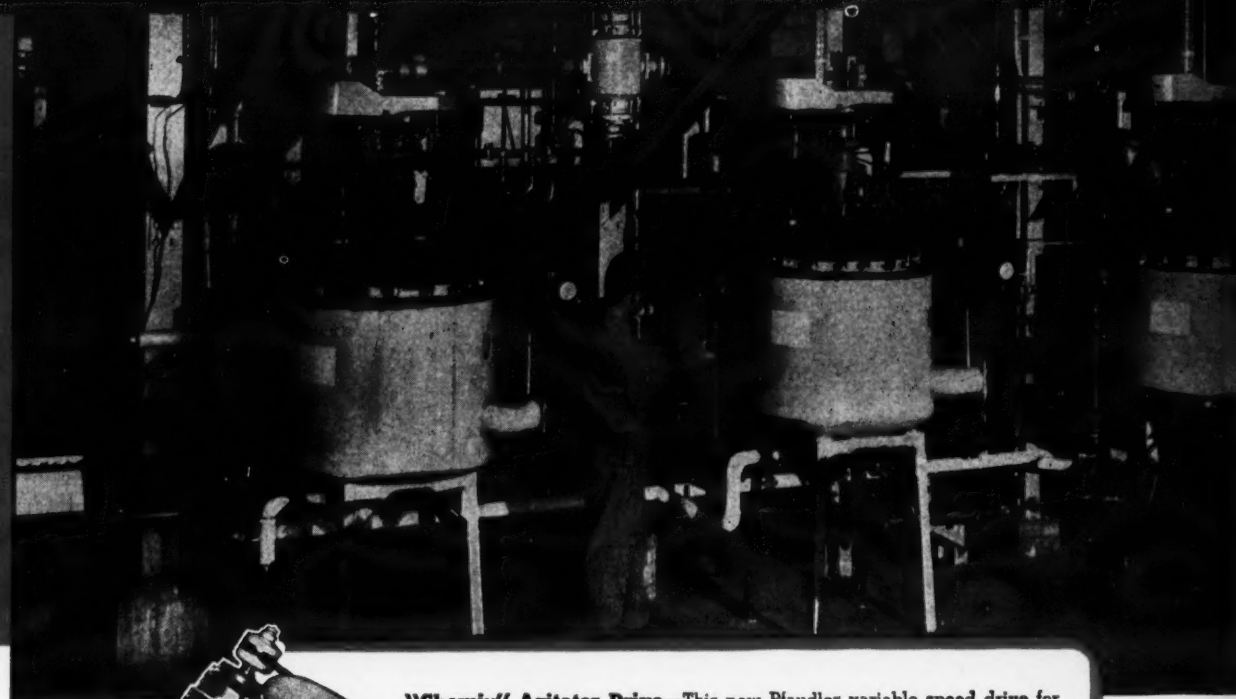
### Service Flexibility

Pfaudler Glass-Lined Pilot Plant Kettles com-

bined (when required) with Pfaudler glass-lined condensers, receivers, pipe and fittings give you maximum service range since they are resistant to all acids, except H F., at elevated temperatures and pressures.

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Available in various combinations in sizes ranging from 5 gallons upward, with or without steam jackets, top-heads, agitators and drives, you can select the exact unit for your particular problem. This gives you practically a custom made unit on a standard unit price scale. May we help you with your problem?



**"Chemix" Agitator Drive**—This new Pfaudler variable speed drive for Kettles over 30 gallons in size provides agitating flexibility. Its variable speed feature permits adjustment to comply with viscosity or specific gravity variations during reactions. It also may be used for many simple mixing jobs. It is inexpensive, sturdy, easy to attach for either vertical or angle mounting. Bulletin on request.

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When inquiring specify CP 2111 . . . see information request blank, pgs. 2-3

## CHEMICAL PROCESSING PREVIEW

Edited for Production and Laboratory Men in Chemical Process Industries

VOL. 10

AUGUST, 1947

NO. 8

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CHEMICAL PROCESSING Preview



# The Cover

The micro-engineering operation pictured on the cover performs vital functions in a complete experimental station in which complete rather than fragmentary results are achieved for direct application to commercial production. See page 36.

## How To Get More Product Information

To make it convenient for readers to locate information in **CHEMICAL PROCESSING Preview** there is . . . on page 65 . . . a complete directory of all products that are featured in editorial articles or described in the advertisements in this issue; On page 66 you will find a list of the advertisers whose products are described in this issue; And to make it easy for you to secure additional information quickly there is a handy request slip inserted between pages 2 and 3.

## Have You Changed Your Address?

If you have changed your business address recently please notify the publishers promptly so that there will be no interruption in the delivery of **CHEMICAL PROCESSING Preview**. Please be sure to give both your old and new address; Include your title, the name of your company and the main product they manufacture. Full information will secure prompt action.

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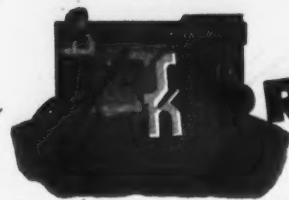
## Have You a New Product?

If you have recently developed a new or improved product, a piece of laboratory or plant equipment or a new material, of specific interest in any line of chemical process manufacturing . . . send information regarding it to our editors.

If it meets their requirements, they will introduce it to the chemical processing industries through the editorial pages of **CHEMICAL PROCESSING Preview**. More than 25,000 copies of this publication are effectively distributed through the chemical processing industries.

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# Preview



# PRODUCTS

To be featured at 2nd Annual Instrument Show Chicago, Ill., Sept. 8-12.  
See them at the **fk** booth — No. 120

◆ **UNIVERSAL ROTAMETER**—Accurate, simple, and convenient to use, this rotameter is ideally suited for the vast majority of rate-of-flow metering applications.

◆ **ELECTRONIC ALARM ROTAMETER**—With no moving parts in the alarm device, this alarm is very sensitive and is particularly adapted to the smallest rotameters and the lowest rates of flow.

◆ **ELECTRONIC RECORDING ROTAMETER**—An induction transmitter on one of several standard **fk** Rotameters and a Foxboro electronic \*Dynalog recorder provide a continuous permanent record of flow conditions. Instantaneous response to change of rate of flow, rugged power, positive linear motion, direct linkage with no gears, and long life are features of this system.

◆ **ARMORED ROTAMETER**—Used for metering fluids which are extremely hazardous or under abnormally high pressure, the metering tube is protected by bolted steel cover plates with boiler gauge glass windows for reading.

◆ **SPECIFIC GRAVITY INDICATOR**—This adaption of an **fk** Universal Rotameter is a simple dependable device which provides continuous indication of specific gravity by means of a standard hydrometer.

◆ **BY-PASS ROTAMETER**—This rotameter is easily inserted into existing pipe systems, and is sometimes more economical than other types. Since the flow is read by by-passing a portion of the main flow, a smaller rotameter can be used. It is especially well suited for reading flow in pipes over 4" in diameter.

◆ **LINE-O-LITE ROTOR IN OPAQUE FLUID DEMONSTRATOR**—A demonstration setup shows the effectiveness and ease of reading a Line-O-Lite rotor. Specially useful in making clear, precise readings of opaque fluids, a rotor, with a thin disk of light-transmitting plastic or glass incorporated, clearly delineates readings on the reference scale.

◆ **FLOW INDICATORS**—Either the rotary or flapper type Flow Indicator provides opportunity to observe flow and condition of any fluid or gas sufficiently translucent to permit visual indication.

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—When inquiring specify CP 2112 . . . see information request blank, pgs. 2-3—

# Cost of Packaging Soap Powder Cut 80% With Valve Bags and Filling Machines

*One man fills sixty 100 lb. bags per hr. Empty bags use little storage space; filled ones stack compactly for shipping*



Bags are filled through self-closing valve, eliminating hand closing operation

**PROBLEM** — The Stevens Soap Corporation, Brooklyn, N. Y. had for some time packed a soap powder sold to laundries, hotels and restaurants in 100 pound drums. The mounting cost of these drums increased the selling price, caused customer complaint. As the drums had to be filled and closed manually, this involved an additional problem in view of help shortages. Also, the drums, both empty and full, took up too much valuable space.

**SOLUTION** — A new packaging system, embodying a valve bag filling machine, and multiwall paper valve bags was installed. The filling machine, known as the 100-LS, greatly speeded-up filling operations. The material is filled into the bag quickly and the weight of the contents automatically closes the bag valve, eliminating hand closing operations. A special device on the bag filling machine "settles" the contents during the filling operation. Only one man is required to operate the 100-LS packer.

In the Stevens plant, the bags after filling, go to temporary storage or to a conveyor which takes them to loading platform. Of interest in connection with the LS-100 packer is the manner in which it handles charges up to 100 pounds. Either of two methods may be used to assure proper weight. In the first, the machine is installed on a platform scale which weighs the material and automatically cuts off the flow when the correct

weight is reached. In the second method, the flow of material is adjusted to a predetermined speed and then cut off by a timing device at the proper amount.

By various combinations of these arrangements, seven types of installations can be made, thus providing unusual flexibility to meet the varying demands of different materials.

In the installation at the Stevens Soap Corporation all packaging and loading is now handled by a three-man instead of a five man-crew. Also this smaller crew loads 50% more material in a given time.

**RESULTS** — The savings in container and labor costs resulted in a total reduction of 80% in packaging expense. One man operating the 100-LS packer fills 60 100 Lb. multiwall bags, or 6000 lbs. per hour compared to previous output of 2500 lbs. per hour in drums.

Also, great savings in storage space were made. Filled multiwall bags require 20% less space than drums. Empty bags require only four square feet per 100 bags. Finally, the actually savings in container costs has been

## New Solutions OF PLANT PROBLEMS



Bags stack compactly, — save space in loading

81%; that is, from \$14.00 per ton for drums to \$2.60 per ton with multiwall paper valve bags.

ST. REGIS PAPER CO., Dept. CP, 230 Park Avenue, New York 17.

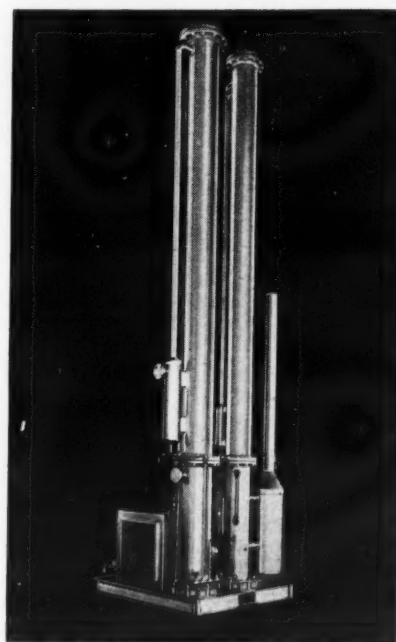
When inquiring specify CP 2113 — see handy form pages 2-3

## Portable Hydrogen Sulphide Removal Unit Recovers and Purifies Gases

*Ethanolamines used as regenerative liquid purification medium. Unit is direct-fired, air-cooled; easily installed*

**PROBLEM** — Eastern chemical manufacturer engaged in the production of soluble nickel salts encountered the problem of purifying and recovering the hydrogen evolved by the solution of metallic nickel in acid solution. The hydrogen was required for use in a subsequent reduction process and was contaminated by small quantities of hydrogen sulphide present in the evolved hydrogen.

**SOLUTION** — The problem was solved by the installation of a self-contained package type hydrogen sulphide removal unit. The unit consists of an absorber column and chemical absorbent regeneration assembly, and the regenerative organic amine process is utilized. The necessary heat exchange, cooling and solution pumping equipment are all included on a common structural steel base. All that is necessary to put the apparatus in operation is to connect gas inlet and outlet lines.



Removal unit in compact assembly on single base

For the purification of hydrogen, a water solution of monoethanolamine is employed. The impure hydrogen is contacted in a packed type absorber with aqueous monoethanolamine solution and the rich monoethanolamine solution from the base of the absorber is passed through a heat exchanger into the amine stripper, where the rich amine solution descends, countercurrent to an ascending stream of steam, and hydrogen sulphide is stripped from the solution until it contains only an exceedingly small trace of this material.

The stripping of the monoethanolamine solution is a result of the combination of mechanical stripping of the solution by steam and also chemical dissociation of the monoethanolamine sulphide at elevated temperatures. The organic alcohol amines behave similarly to aqueous ammonia, and the alkalinity of an aqueous solution decreases very rapidly with an increase in temperature.

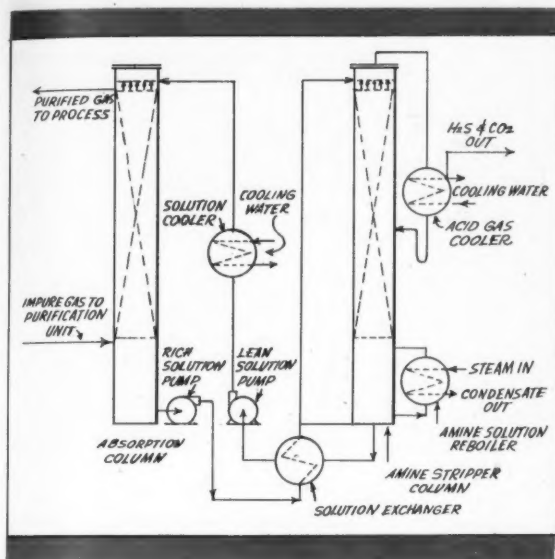


The pH of monoethanolamine solution at 75° F. is above 12.5, while at approximately 280° F. it is only slightly more than 7.

It is apparent that this is a very serviceable system for removing and recovering acidic gases, since the alkanol amines behave as neutral-alkaline compounds, depending on the temperature.

The stripped amine solution, leaving the base of the stripper, passes through a heat exchanger, and is further cooled in either water or air-cooled heat exchange units, and is returned to the absorber.

The system is extremely economical, since there is actually no chemical loss during the process, and the use of costly alkalis has been entirely eliminated. Purification of the hydrogen has been carried out to the point that the gas will pass the very sensitive lead acetate test.



Flow diagram of hydrogen sulphide removal process

This type of unit has also been used for the removal of hydrogen sulphide, or hydrogen sulphide and carbon dioxide where these impurities occur simultaneously in hydrogen or other gases.

The units are available in sizes ranging from 500 cu. ft./hr. to 10,000 cu. ft./hr. in the self-contained package units, and are available in tailored sizes for larger installations.

**RESULTS** — Hydrogen recovered and purified to the extent that only a very small trace of hydrogen sulphide remains. The economics of the gas purification are such that the whole operation costs less than 0.75c per thousand cu. ft. of gas purified.

This same type plant may be used to recover carbon dioxide from lime kiln gas or other sources of carbon dioxide, and the recovered carbon dioxide may be subsequently processed to produce either the liquid or dry ice in quantities sufficient to make the undertaking profitable. The cost of recovering carbon dioxide is low, usually ranging between \$3 and \$7 a ton, depending on the cost of the local utilities.

The unit is entirely automatic in operation and requires only occasional check-ups to determine solution strengths and other variables.

GRAFF ENGINEERING & EQUIPMENT CO., Dept. CP, 505 South 3rd St., Louisville 2, Ky.

When inquiring specify CP 2114—see handy form pages 2-3

AUGUST, 1947

Wherever there's water,  
there's pH...



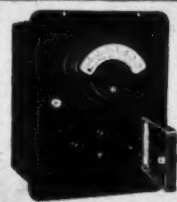
Beckman pH Control is the modern miracle tool with which industries of all types are boosting production efficiencies, reducing costs. No matter what your product or operation... whether metal finishing, power plant operation, agriculture, food processing, sewage and waste disposal, water supply, chemical processing, oil refining, textile manufacture—to mention only a few... if you use water or water solutions anywhere—in vats, tanks or flow lines—investigate the savings that can be made, perhaps are already being made by your competitors, with the aid of modern Beckman pH Control.

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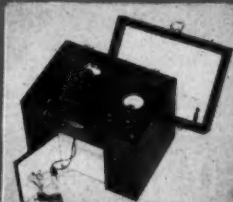


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provides completely automatic large scale process control. Operates on standard AC current. Gives continuous pH indication and operates standard recording and regulating instruments for complete and continuous pH control.

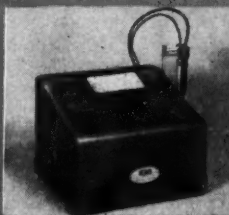
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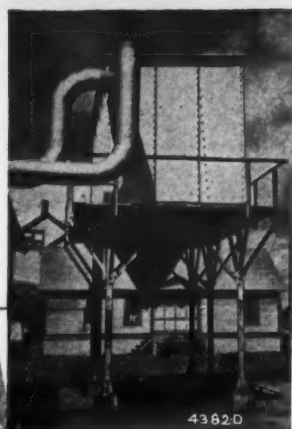


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## SLY DUST Control

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INDUSTRIAL DUST CONTROL

When inquiring specify CP 2116—see handy form pages 2-3

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Jobber's Name \_\_\_\_\_ City \_\_\_\_\_



**PAISLEY PRODUCTS INCORPORATED**

Manufacturers of Glues, Pastes, Resin Adhesives, Cements and Related Chemical Products  
1770 CANALPORT AVE., CHICAGO 16, ILL. ★ 530 W. 51st STREET, NEW YORK 19, N. Y.

When inquiring specify CP 2117—see handy form pages 2-3

## New Solutions OF PLANT PROBLEMS

### Photosensitized Chlorination Improved by New Lamps

Choice of batch or continuous system depends  
on reaction rate

**PROBLEM** — A large chemical company had been chlorinating an organic compound which requires the presence of a catalyst for satisfactory chlorination.

The catalyst, as well as the compound, chlorinates, leading to loss of chlorine as well as imposing the problem of separating chlorinated catalyst from the chlorinated product. The company sought a means of avoiding this loss of chlorine and loss of time.

**SOLUTION** — Ultraviolet has been found to be an effective agent for catalyzing hydrocarbon reactions and was therefore utilized in this instance. In various cases light has been found to be the only medium that will cause the desired reaction and sufficient absorption of chlorine molecules.

The mechanism of photosensitization of chlorine gas appears to involve the absorption by the chlorine molecule of radiation in the blue and ultraviolet portions of the spectrum. When the energy absorbed is in excess of 2.48 electron volts, dissociation of the molecule occurs. The products are mostly one normal ( $2P\ 3/2$ ) atom and one excited ( $2P\ 1/2$ ) atom. The absorption coefficients reach a maximum in the ultraviolet at about 3400 angstroms. Hence it is this portion of the ultraviolet spectrum which is especially effective in the photosensitization of the chlorine.

Recently great progress has been made in the development of lamps for the production of ultraviolet radiations. These lamps are linear highpressure mercury arcs operable to several kilowatts of electrical capacity and have very high radiations output in the spectral region in which the chlorine molecule absorbs most highly. They are greatly more economical sources for ultraviolet than were hitherto available.

The familiar pressure batch system for chlorinations employs the conventional kettle type apparatus. Careful experimentation and study of the many problems involved in the satisfactory application of ultraviolet photosensitization in these kettles have resulted in the development of efficient equipment. The limited penetration of the effective radiation into the reactants which would result in a greatly decreased rate of reaction and in the formation of unwanted products was compensated for by the employment of multiple chlorine gas inlets and high speed agitation. Carbonization at the lamp window not only seriously decreased the effective light energy but, in at least one instance, overheated the glass to the softening point.

Provision for suitable cooling eliminated the carbonization and overheating. The lamps were enclosed with concentric glass tubes, which were transferred to the ultraviolet reactions, and which were immersed in the reactants. Adequate cooling was effected by water, nitrogen, air, or combinations which were circulated between the lamp chamber and the reactants. The cooling media employed are very transparent to the ultraviolet radiations.

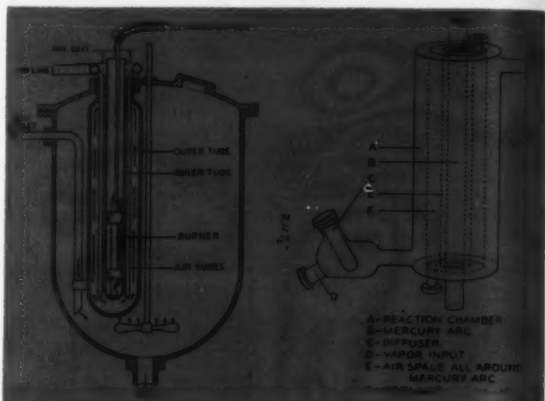
It has been found practical to convert existing kettle equipment to the batch system for photosensitization by the suspension of a suitable lamp unit with cooling through the cover of the kettle. A typical installation is illustrated in Figure 1.

Some chlorinations occur in the vapor phases. Many

are vapor-liquid reactions with liquid or solute products. Reactions of these types have been found to be suitable for a continuous flow reaction system. The equipment devised for such a system is very small since it holds only a few pounds of reactants at a time. It is usually made entirely of glass, providing visibility of reactants and product, and easy cleaning.

In the case of a liquid reactant or a reactant dissolved in an inert solvent a thin flowing film on inclined flow boards may be employed. The flow boards are enclosed in a suitable reaction chamber, which may be cooled by water. The ultraviolet light is admitted through windows. A more efficient arrangement is illustrated in Figure 2.

The reaction vessels consist of concentric annular glass cells with the ultraviolet lamp positioned axially. The



Figures 1 & 2 showing batch and continuous applications of ultraviolet lamps

innermost cell provides temperature control by circulating water. The outer cell provides the reaction chamber. The spacing between walls of the reaction cell is arranged to provide the maximum utilization of the light energy and the most efficient production rate. Vessels of this design may be employed in series when the reaction requires more than momentary exposure.

Consideration of the chemical reaction specific reaction rate, which may be defined by the ratio "time —  $I \times$  concentration ( $1 - n$ )" where "n" is the order of the reaction, may serve as an indication. A high reaction rate suggests the continuous flow system. A low reaction rate indicates use of the batch system.

The batch system requires bulky holding tanks and kettles. If these are available, and even if the flowing system is indicated, the existing equipment may be used. In some instances unused wall space has been used for an installation of the annular flowing system, utilizing existent buildings whereas, the use of kettles would have necessitated new construction.

**RESULTS** — The recently developed high pressure linear mercury ultraviolet lamps provide more efficient sources of ultraviolet than hitherto available. These lamps operate to several kilowatts capacity and are very successfully applied to the conventional kettle type apparatus. Carbonization and overheating overcome.

The multistage process eliminates bulky containers, lamp failure, difficulty in control and operating temperatures of the lamp and the reaction vessel, and results in satisfactory admixture of chlorine gas with reactants.

HANOVIA CHEMICAL & MFG. CO., Dept. CP, Chestnut St. and N.J.R.R. Ave., Newark 5, N. J.

When inquiring specify CP 2118—see handy form pages 2-3

CHEMICAL PROCESSING Preview



## No Watermarks When Paper Mill Fan Pumps Are Driven by V-Belt

*Rope drive provides necessary constant speed; eliminates slipping; saves space*

**PROBLEM** — At the paper mill of the Central Fibre Products Co., Tama, Iowa, a lineshaft drives seven fan pumps which must be operated at constant speed to avoid watermarks and ripples in the finished paper. An electric motor was used to drive the shaft through a heavy flat belt 72 feet long.

In spite of precautions, the belt slipped continually and every slip meant a ripple or watermark in the paper. New belts after about 18 months service would cause shutdowns. Each shutdown made 15 men idle for two hours.

**SOLUTION** — A platform was slung from the ceiling and a motor mounted on it just 40 inches away from the lineshaft. A V-belt drive was installed.

**RESULTS** — This drive has now been running for three years — 24 hours a day without a shutdown. Ripples and water marks in the paper eliminated. No time lost on part of the 15 man crew. Also, there has been a saving in valuable floor space.

GATES RUBBER CO., Dept. CP, Denver, Colo.

When inquiring specify CP 2119 — see handy form pages 2-3

★

## Mild Compound Easy On Fabric In Washing Neoprene Work Clothes

*Used by refinery to remove oil, carbon, coke*

**PROBLEM** — Neoprene work clothes of employees of a California refinery accumulate coating of oil, carbon and coke and must be washed after each wearing. To effect removal a highly alkaline raw material was used and proved to be hard on the fabric.

**SOLUTION** — In cleaning, clothes are now immersed in an air-agitated metal tank heated by live steam and charged with a mild solution of Oakite. Extra agitation is provided by stirring with a wooden paddle. After the immersion the clothes are rinsed with fresh water.

**RESULTS** — This new procedure is much easier on the fabrics than that using the harsh cleaner. Also the garments dry down clean and streak-free.

OAKITE PRODUCTS, INC., Dept. CP, 22 Thames St., New York 6, N. Y.

When inquiring specify CP 2120 — see handy form pages 2-3

★

## 20-Page Catalog Covers Rotary Dumpers for Mine and Railroad Cars

A 20-page, illustrated booklet presents factual information concerning rotary dumpers for mine and railroad cars. Various types are fully described, diagrammed, and shown in operation. Book No. 2048-A.

LINK-BELT COMPANY, Dept. CP, 300 W. Pershing Road, Chicago 9, Ill.

When inquiring specify CP 2121 — see handy form pages 2-3

AUGUST, 1947

## Why take the long way 'round?

A common method for producing amino acids involves sulfuric acid hydrolysis of protein-rich sources. Removal of excess acid is usually accomplished by neutralization with calcium hydroxide. The calcium sulfate thus produced must then be removed. One-step production of salt-free palatable protein hydrolysates can be accomplished by passing the acid-treated protein material through AMBERLITE IR-4B. The hydrolyzing acid and certain objectionable dicarboxylic acids are adsorbed on the resin.

## Salt-free neutralization with Amberlite Ion Exchange Resins

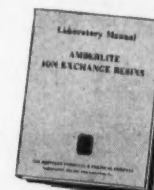
A major problem in the neutralization of very dilute acid contaminants (up to 2,000 ppm) by ordinary methods is the formation of equally objectionable salts. However, complete and rapid removal of unwanted acids can be effected, in many cases, by passing the acidic material through a bed of the anion exchange resin, AMBERLITE IR-4B.

Simplicity and effectiveness of AMBERLITE IR-4B in deacidification suggest its consideration in treatment of organic solvents, removal of contaminants from foodstuffs and pharmaceuticals, adsorption of acids which inhibit polymerization, and removal of acid catalysts from reaction mixtures.

For special chemical processes . . . for softening or complete deionization of water . . . investigate the AMBERLITES. Our staff will be glad to discuss possible uses.

AMBERLITE is a trade-mark, Reg. U. S. Pat. Off.

A starting point for your Amberlite thinking



For your copy of our "Laboratory Manual on the AMBERLITES," address The Resinous Products & Chemical Company, Dept. CP-6, Washington Square, Philadelphia 5, Pa.

# THE RESINOUS PRODUCTS & CHEMICAL COMPANY

WASHINGTON SQUARE, PHILADELPHIA 5, PA.

When inquiring specify CP 2122 . . . see information request blank, pgs. 2-3

# Steel Pallet Design Permits Lifting from Eight Different Directions

*Available in six sizes, pallet will hold  
up to 20,000 lbs.*

**USES** — Pallet is used in handling boxed or bagged materials in warehouses, assembly and conveyor line operations, and loading and unloading freight cars, trucks and trailers.

**FEATURES** — Design of the unit permits the forks of a lift or pallet truck to be slipped between the top and bottom sections from eight different directions — four sides and four corners — thus cutting down the maneuvering in crowded spaces.

**DESCRIPTION** — As indicated in the illustrations, top and bottom sections of the pallet are held together by nine hollow steel posts, crimped to hold the unit together without welding. This design permits the use of stakes, which can be fitted into the hollow steel posts at the corners and sides. The bottom section of the pallet has four open sections so that it may be used with pallet trucks.

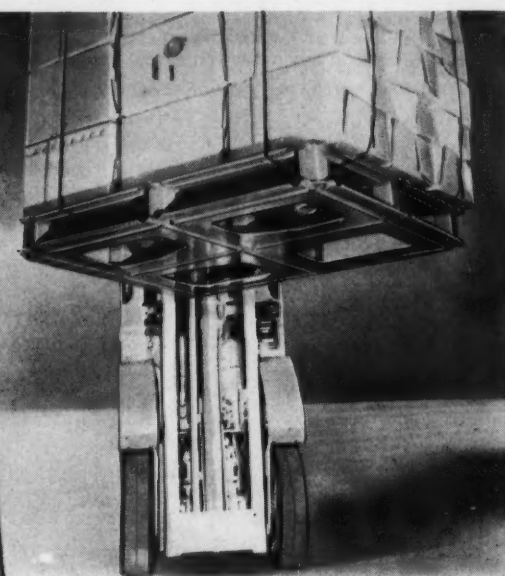
Available in six sizes, the pallet will hold up to 20,000 pounds of boxed or bagged materials or merchandise.

MONROE AUTO EQUIPMENT COMPANY, Dept. CP, Monroe, Mich.

When inquiring specify CP 2123 — see handy form pages 2-3



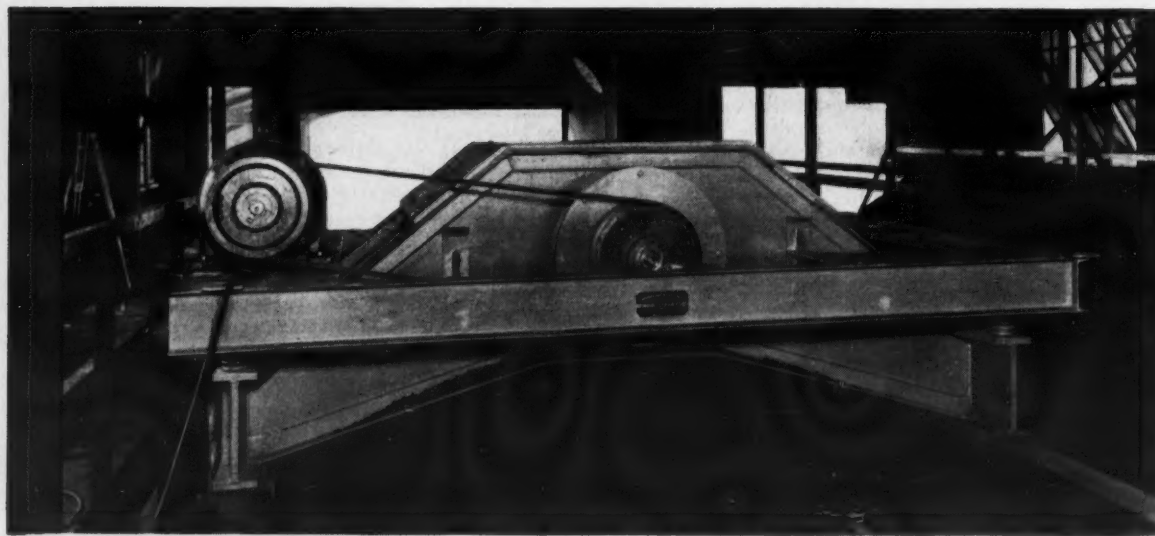
## Materials Handling



Steel pallets hold bagged or boxed materials for storage or shipment. Hollow steel posts lighten pallet weight, permit insertion of stakes, if necessary, for greater load stability.

# Hopper-Bottom Cars Unloaded in 90 Seconds by Car Shakeout

*Available in pallet and platform models of 4000 lb. capacity.*



Car shakeout in position prior to unloading.

**USES** — Shakeout is used to unload hopper-bottom railroad cars of free-flowing bulk materials — including frozen materials.

**FEATURES** — Unloads hopper-bottom cars in as little as 90 seconds. No manual labor required. Only two men are required in attendance — one places the 5-ton unit in position (by means of a hoist) and presses the operating button, the other opens and closes the hopper doors. Reduces unloading costs. Permits safe operation — no damage to car or danger to workman.

**DESCRIPTION** — Unit is portable — requires no attachments to or on the car. It is placed on top of the hopper-bottom car, resting on the two sides. When current is turned on, it sets up a rhythmical seismic action which is transmitted throughout the entire car at a frequency of 1000 cycles per minute.

Tightly packed granular materials give way quickly under the action of the shakeout. In some cases unloading is fast enough so that complete trainloads are emptied without uncoupling the locomotive.

Construction employs a single shaft which runs in two anti-friction bearings. At the ends of this shaft are unbalanced weights which set up a centrifugal force which imparts the rhythmic action to the body of the car. A 20 HP motor provides power through a V-rope drive.

Bulletin No. 128 contains a series of case histories which show actual unloading time for specific installations.

ROBINS CONVEYORS DIVISION, HEWITT-ROBINS INCORPORATED, Dept. CP, 270 Passaic Ave., Passaic, N. J.

When inquiring specify CP 2124 — see handy form pages 2-3

CHEMICAL PROCESSING Preview

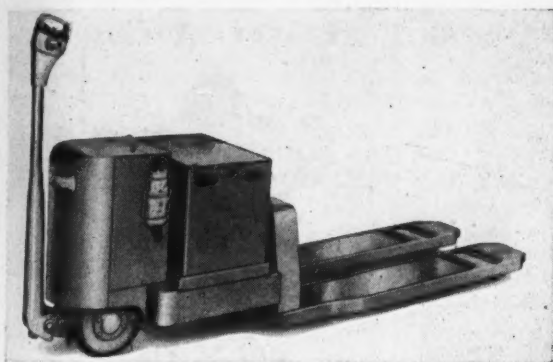


## FRONT-DRIVE LIFT TRUCK Has Detachable Power Unit

Battery-driven pallet and platform models  
have 4,000-lb. capacities

**USES** — Used in material handling problems where either a platform or pallet type truck is required.

**FEATURES** — Two-wheel front drive provides greater stability and easier turning and maneuvering. Tire maintenance is simplified by this design. Dynamic brake works quickly and is controlled by a convenient push button.



Two-wheel front drive lift truck.

Motor drive and controller are contained in a single unit, which permits easy removal from the frame.

Design is said to simplify tire maintenance.

**DESCRIPTION** — This model is being produced in pallet and platform styles, all having a 4000 lb. capacity with two forward speeds and two reverse... plus dynamic braking. All speeds and the brake are controlled by three push buttons contained in the steering handle. Forward and reverse buttons are two-position, giving low speed when partially depressed and full speed when depressed to the second position.

Platform models of the truck are furnished in 20" and 26 $\frac{3}{4}$ " wide, 36" to 72" long platforms, all with 3 $\frac{1}{2}$ " lift from 6" to 11" standard heights. Pallet models are 24" and 27" wide, 30" to 60" long with 4" lift from 3 $\frac{1}{2}$ " lowered position. Trucks can be equipped for 8, 12, and 24 hour service with standard batteries.

**LIFT TRUCKS, INC.**, Dept. CP, 2425 Spring Grove Ave., Cincinnati 14, Ohio.

When inquiring specify CP 2125—see handy form pages 2-3

AUGUST, 1947

# PALMER-SHILE

## MATERIALS HANDLING EQUIPMENT

*Designed to do Specific Jobs Better*

### Combination TRUCK and DRAIN RACK

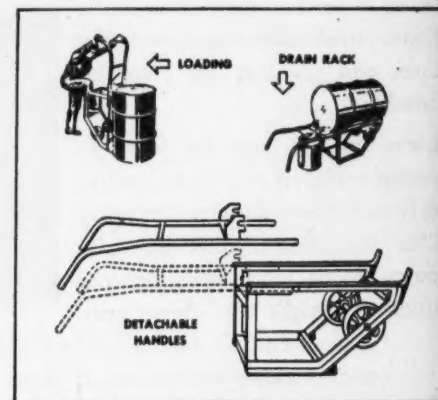
*Loads Automatically*

Weights only 90 pounds, yet handles barrels weighing up to 1,000 lbs. with surprising ease. Sturdy frame, free rolling wheels and proper balance make light work of trucking the heaviest drums...

Tilt truck against drum, drop sliding steel grip over top of rim—rock truck back to wheeling position and loading is automatic.

To use as drain or storage rack detach handles to conserve floor space. Slight downward push on truck handles raises wheels and lays rack on floor in convenient draining position. One pair of handles will serve any number of trucks.

Heavy angle iron frame, tubular handles, all welded construction.



### TWO STYLES

With and Without Detachable Handles

Item NS-506 (Handles welded to frame) .....	\$42.50
Item NS-506 DH (Truck Complete with detachable handles) .....	44.50
Item NS-506 R (Item NS-506 DH without handles)	32.50
Item NS-506 H (Detachable handles only, for use with NS-506 R) .....	12.00

Order by "Item" number. Prices f.o.b. Detroit.

### Barrel and Box Grab

Item NS-288 \$55.25

For picking up any wood or steel barrel, box or container, 40" diameter or less. 2000 lb. capacity. Rigid toggle construction. Weighs 35 lbs.

### Drum and Barrel Sling

Item B-205 \$12.50

Handles barrels, drums, kegs—anything with a lip. Half ton capacity. Heavy welded chain and forged grab hooks. Weighs 8 $\frac{1}{2}$  lbs.

### Carboy Truck

Item B-488 M \$38.00  
Item B-488 R \$42.00

Gripping yoke makes loading automatic. Hardened steel studs grip load—no slipping. All steel welded construction—20" wide, 48" in length—capacity 500 lbs. Wt. 75 lbs.

### Barrel Truck

Item S-911-M \$33.50 (Metal Wheels)  
Item S-911-R \$38.50 (Molded-on rubber wheels)

Automatically loads barrels up to 1,000 lbs. Heavy tubular welded construction—sliding grip. wide—wt. 85 lbs.

### Barrel and Box Skid

Light, sturdy, all steel welded construction. Handles heaviest barrel or box. 14" wide.

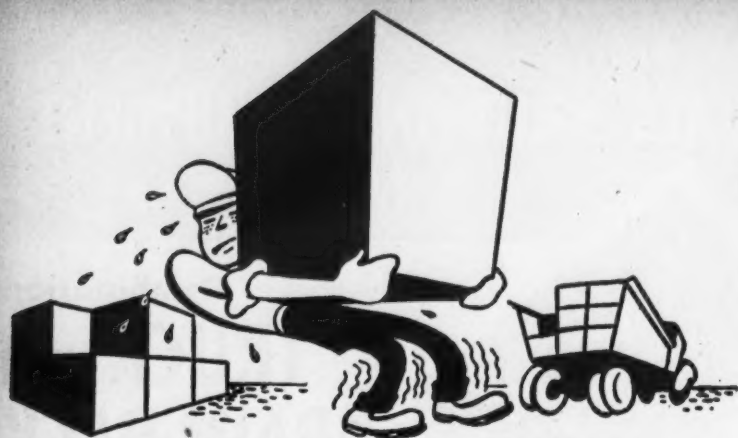
Item B-470-8 (8 feet) .. \$22.00  
Item B-470-10 (10 feet) 27.50  
Item B-470-12 (12 feet) 33.00

# Palmer-Shile Co.

16016 Fullerton Avenue

Detroit 27, Michigan

When inquiring specify CP 2126 . . . see information request blank, pgs. 2-3



## YOUR PROFITS ARE SAGGING ... when you move goods by hand

Lifting is hard work. And men engaged in lifting get tired as the day wears on with the result that their productivity takes a nose dive. This is not so with a machine.

The Stevedore, Jr. is a portable Power Belt Conveyor that can make light work of your heavy lifting and stacking operations. With it, one or two men will lift or carry more goods than ten men can lift or carry unaided. Morning, noon and night, the Stevedore, Jr. works steadily without

let-up to perform your lifting tasks faster and more economically than can possibly be done by hand.

Stevedore, Jr. can be used in many ways. It can be hooked to a Rapid-Wheel Gravity Conveyor Line (as shown) and used to carry goods long distances onto truck or freight car. Being port-



able, it can be moved to the job for loading, unloading and stacking operations. It plugs into any light socket, carries up to 200 pounds of distributed load at 65 feet per minute and can be adjusted to any angle.

Have you a material handling problem?

Send your handling troubles to Rapids-Standard for solution.

OFFICES IN PRINCIPAL CITIES



Manufacturers of  
STEEL FORGED CASTERS • TRUCKS • CONVEYORS • POWER BOOSTERS

*The Rapids-Standard Co., Inc.*

Sales Division—350 Peoples National Bank Bldg., Grand Rapids 2, Michigan

When inquiring specify CP 2127—see handy form pages 2-3

## Materials Handling

### Move 60 Tons of Bulk Materials per Hour at 45° Incline

14 and 20' portable flight conveyors handle  
coal, grain, hot castings



Portable flight conveyor

**USES** — Portable flight conveyor for conveying bulk materials at steep inclines. For handling coal, dirt, ashes, grain, similar material. Also recommended by manufacturer for handling hot castings.

**FEATURES** — Easily moved from one job to another. Quickly adjusted to desired conveyor angle. Constructed to assure minimum amount of product "roll-back."

**DESCRIPTION** — Inclines up to 45°. Available in 14 and 20' lengths. Model CFL "Tote-All." Has 2" flights bolted to steel roller chain on 1' centers.

Power furnished either by electric motor or gasoline engine handling up to 60 tons per hr. of 50-lb.-per-cu.-ft. material. Maximum discharge height of 14' model is 10'; of 20' model, 14'. Minimum discharge height of both models, 4'. Flight speed, 100 fpm.

Overall frame width, 13 3/4"; trough width, 10 1/4". Mounted on Trail-Hoist combination trailer and hydraulic lifting device. Additional details contained in descriptive bulletin.

**MATERIAL MOVEMENT INDUSTRIES**, Dept. CP, 310 S. Michigan Ave., Chicago 4, Ill.

When inquiring specify CP 2128—see handy form pages 2-3

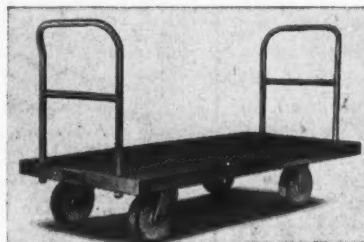
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### 175-lb. Aluminum Hand Truck Has 2000-lb. Capacity

Standard 14-1/2"- high, 6 x 3' platform;  
also special platforms

**USES** — All-aluminum trailer or hand truck for haulage purposes.

**FEATURES** — Lightweight, yet rugged. Platform sizes designed for special requirements, if desired.



All-aluminum hand truck

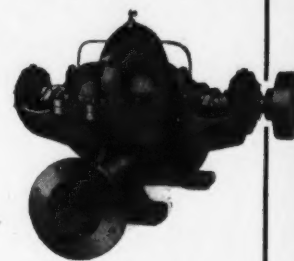
**DESCRIPTION** — Weight, 175 lbs. Nominal capacity rating, 2000 lbs. Standard platform size, 3' wide, by

## PEERLESS HORIZONTAL CENTRIFUGAL PUMPS

(Formerly Dayton-Dewd)



### TYPE A PUMPS For General and Process Services



**CAPACITIES:**  
50 to 70,000 g.p.m.

● The Peerless Type A pump is characteristic of the entire line of high quality, heavy duty horizontal centrifugal pumps, manufactured by Peerless to serve the diversified pumping demands of industry, municipalities and water works everywhere.

#### Peerless Type A Centrifugal Pumps

General Specifications: *Capacities*, from 50 to 70,000 g.p.m.; *Heads*, 15 to 300 feet; *Sizes*, 2" to 42" discharge; *Drives*, electric and other types from 1 to 1000 h.p.; *Type*, single stage, double suction, split-case, ball bearing. REQUEST DESCRIPTIVE BULLETIN.

### PLAN WITH PEERLESS

For all your pumping requirements, plan with Peerless. Peerless' comprehensive line of pumps includes Underwriters' approved Fire Pumps for plant fire protection, Boiler Feed and Pipe Line pumps and scores of other vertical and horizontal types producing capacities from 10 to 220,000 g.p.m.

## PEERLESS PUMP DIVISION

FOOD MACHINERY CORPORATION

Factories:

Canton 6, Ohio • Quincy, Ill. • Los Angeles 31, Calif.  
District Offices: Canton 2, Ohio; Philadelphia: Suburban Square, Ardmore, Pa.; Atlanta: Rutland Bldg., Decatur, Ga.; Dallas 1, Tex.; Los Angeles 31, Calif.

When inquiring specify CP 2129  
—see handy form pages 2-3

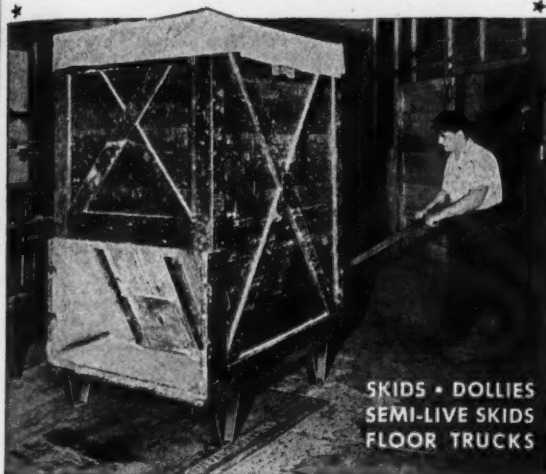


## Another Handling Problem solved by **IRONBOUND**

Your handling problem is Ironbound's business. Equipment built to handle specific jobs will reduce costs considerably. Write today and let us arrange a consultation.



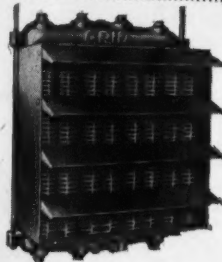
**IRONBOUND BOX & LUMBER CO.**  
Materials Handling Division  
65 HOFFMAN PLACE, HILLSIDE, NEW JERSEY



SKIDS • DOLLIES  
SEMI-LIVE SKIDS  
FLOOR TRUCKS

When inquiring specify CP 2130 — see handy form pages 2-3

**HERE'S A UNIT HEATER THAT WILL  
WITHSTAND HIGH CORROSIVE FUMES  
AND HIGH STEAM PRESSURES**



**GRID  
Unit  
HEATER**

*Here's Why*

- One piece construction heating sections (Patented) of high test cast iron that will withstand steam pressures up to 250 lbs.
- No soldered, brazed, welded nor expanded connections to become loose or develop leaks.
- No electrolysis to cause corrosion, with resultant breakdowns, leaks or heating failures now, or in future years.

**HIGH TEST  
CAST  
IRON  
HEATING  
SECTIONS**

That's why GRID Unit Heaters withstand the high corrosive fumes of HCl, and Cl<sub>2</sub> and operate efficiently for 10 years without maintenance expense.

**SEND**

Send for booklet "CORROSION IN UNIT HEATERS", free upon request.

**D. J. MURRAY MANUFACTURING CO.** WAUKESHA, WISCONSIN

When inquiring specify CP 2131 — see handy form pages 2-3

AUGUST, 1947

## Materials Handling

6' long, 14½" high, may be redesigned for special requirements.

Frame is constructed from aluminum alloy structural shapes. Deck is non-skid aluminum plate, 3/16" thick. Welded assembly deck and frame. Cured-on, solid rubber tire-type wheels, Timken-bearing mounted.

Wheel size, 10 x 2½", with aluminum alloy-type wheel centers, caster forks and brackets. Running gear is bolted to frame and platform assembly; platform has aluminum alloy tube stake pockets on both sides and ends. Racks of 1" standard pipe, aluminum or steel tubing are available.

MERCURY MANUFACTURING COMPANY, Dept. CP,  
4026 S. Halsted St., Chicago 9, Ill.

When inquiring specify CP 2132 — see handy form pages 2-3

## Fork Lift Truck Maneuvers Freely on Uneven Surfaces

*Pneumatic tires provide outdoor "grip"; unit has  
120" lift, 4000-lb. capacity at 24"*

USES — Pneumatic-tired fork lift truck for working out-doors or on surfaces too uneven for solid-tired machines.

FEATURES — Highly maneuverable. Designed for sure-footed traction and smooth operation.

DESCRIPTION — 4000-lb. capacity at 24". Lift, 120". Over-all height, 85½". Designed, in most instances,



Pneumatic-tired fork lift truck

for manufacturer's standard forks and attachments. Heavy duty transmission provides speed of 9.4 mph in high, 2.9 mph in low, both forward and reverse.

Four-wheel stability and center-pivoted steering axle are combined with pneumatic tires. Mechanical governor assures good carburetion, less frequent adjustments. Includes water pump and thermostatic control.

Engine compartment has 32 x 11" side louvers and divided hood for easy removal. Universal joint between transmission and drive axle facilitates clutch removal. For tire change, remove demountable rim secured by 4 lugbolts. Minimum under clearance with truck empty is 5¼" under center of drive axle.

CLARK TRUCTRACTOR, Division of Clark Equipment Company, Dept. CP, Battle Creek, Mich.

When inquiring specify CP 2133 — see handy form pages 2-3

*See for yourself*



*Why ARMSTRONG TRAPS  
ARE SO POPULAR*

• There's no involved explanation needed to show why Armstrong traps are so popular in chemical process industries. Briefly, the reasons are:

- 1) Automatic air elimination and positive, dependable condensate drainage.
- 2) No steam leakage under any load conditions.
- 3) Exceptionally low maintenance and perfect operation even with ordinary amounts of dirt and foreign matter.

Reports gathered over a 13-year period show that these features pay off by providing an average of 40% faster heating on steam-jacketed equipment, unit heaters, dryer rolls, cookers, evaporators and many other heating and process units. Along with the faster heating provided by Armstrong trapping, owners report greater production and an end to trap maintenance worries.

Send for a copy of Catalog H for all the reasons behind Armstrong's popularity. There are 36 pages of valuable information and hints on current steam trapping practices.



**ARMSTRONG MACHINE WORKS**

880 Maple Street

Three Rivers, Michigan

*Armstrong*  
STEAM TRAPS • AIR TRAPS • PURGERS • HUMIDIFIERS

When inquiring specify CP 2134 — see handy form pages 2-3

## ASCO SOLENOID VALVES

### Wide Variations in Automatic Flow-Control of Chemicals

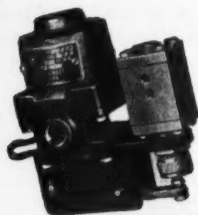
Each of our broad groups of Solenoid Valves can contribute automatic, efficient control to the handling of most chemicals, both liquid and gas.

- We can provide Safety Shut-Off and Trip Valves. Safety Shut-Off Valves are generally installed for emergency only, either closing tight or opening fully upon being de-energized. Trip Valves operate "trip" upon momentary application of current.
- We can provide packed and packless Shut-Off Valves to automatically control the flow of liquid or gas in one direction.
- We can provide 2, 3 and 4 way pilot valves and pilot controlled diaphragm valves for controlling the flow of liquid or gas in connection with cycle operations.
- We can provide special valves in all classifications if standard valves will not fill requirements.
- We can provide most valves in the above groups in Explosion Proof Design, making them safe to use for the Class 1, Group D Hazardous Locations as defined by Underwriters.

In short, in the ASCO Solenoid Valve line you will be able to find a reliable, efficient automatic control of the flow of practically any liquid or gas. If you will write us about your requirements, we shall be glad to give you our recommendations. Also, send for a copy of our Condensed Catalog 200-R.



3-way diaphragm operated solenoid pilot controlled valve for handling coke even gas; 2 inch pipe size.



Special 3-way pilot valve with stainless steel body and trim.

When in need of Automatic Transfer Switches, Remote Control Switches, Contactors, Relays, and Specialized Electromagnetic Controls, come to us.

## Automatic Switch Co.

47 EAST 11TH STREET • NEW YORK 3, N. Y.

When inquiring specify CP 2135—see handy form pages 2-3

Page 14

## Materials Handling

### Speed Dock-to-Car Movements with Metal Bridge Ramp

*Lightweight unit easily positioned and locked by one man*

USES — Metal bridge ramps for moving materials and equipment between warehouse or loading dock and car or truck.



Lightweight metal bridge ramp

FEATURES — Lightweight; easily lifted and positioned by one man. Non-skidding. Sturdy.

DESCRIPTION — Heavily trussed underneath. Diamond Safety plate. Crowned to compensate for different levels between car, dock, trucks, etc.

High side guards prevent injury to operator, load or equipment. Positive locking devices on each side of the ramp and independent of each other, with sufficient range adjustment to position ramp securely and safely. Additional details in Bulletin 465.

PALLET ENGINEERING COMPANY, Dept. CP, 625 Second St., San Francisco 7, Calif.

When inquiring specify CP 2136—see handy form pages 2-3

★

### Aids Sorting, Routing Materials to Either of Two Destinations

*Y-switch used to converge or diverge 2 parallel or right-angle conveyor lines*

USES — Y-switch curve for use with manufacturer's Rapid-Wheel Gravity conveyor installations. For sorting and routing packages separately to two designated areas for either storage or shipment.

Likewise, it may be used in reverse to converge two conveyor lines to a main line.

FEATURES — Flexible, permitting a number of materials-flow arrangements. For example, curve sections may be added to permit erection of two lines diverging 90° from the main line or two lines parallel to the main line, as illustrated.

Or, two lines may be made to lead in directions 90°

## CHOKING IS IMPOSSIBLE

with  
**"HAMMOND"**  
**Screw-Lift**

THE PATENTED CONSTRUCTION  
AT THE JUNCTION DOES IT!

The "Hammond" Screw-Lift has been engineered to avoid choking at the feed end. The feeder conveys material to an enlarged bottom junction designed to eliminate all pressure, making choking impossible. The bottom section tapers to the diameter of the lift which operates with less than 25% cross section load, eliminating congestion.

This is what makes Screw-Lift successful, plus many other patented features. Hundreds of trouble-proof installations are your guarantee of satisfaction. If you have a bulk material conveying problem, submit it to us.

Write for Form No. M-500-2

Type "C"  
5 other  
types avail-  
able



**Screw Conveyor Corporation**  
699 HOFFMAN ST. HAMMOND, IND.  
TRADE MARK REG. PATENTS U.S. PAT. OFFICE

When inquiring specify CP 2137—see handy form pages 2-3

ELECTRIC POWER  
DOES ALL THE WORK  
WHEN YOU 'STACK IT' WITH A

## YALE WORKSAVER

70413

THERE'S A YALE WORKSAVER TO FIT YOUR NEEDS  
High Lift Platform, Low Lift Platform, Fork, Pallet and Tractor Types. High Lift Model shown. Send today for catalog.

**YALE** THE YALE & TOWNE MANUFACTURING CO.  
4530 Tacony Street Philadelphia 24, Pa.  
HAND LIFT TRUCKS • HAND AND ELECTRIC HOISTS • KRON DIAL SCALE

When inquiring specify CP 2138—see handy form pages 2-3

CHEMICAL PROCESSING Preview



## Detroit AIR HOISTS

**Quick Deliveries  
Can Be Made...**



They are recommended for paint, chemical, pickling processes; for potentially explosive and other hazardous conditions; also for a wide variety of normal applications.

Consult us on the uses and applications for Detroit, Geared Type, Pneumatic Hoists. Ask for Bulletin 700.

**DETROIT HOIST & MACHINE CO.**

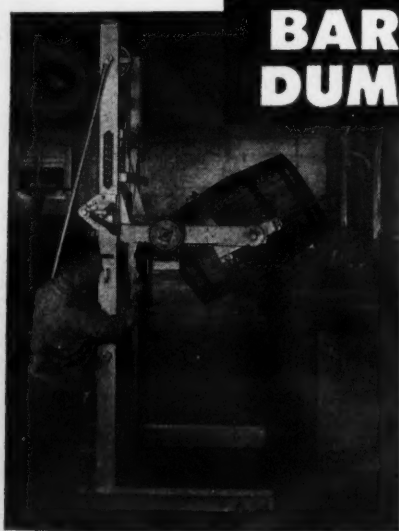
8222 MORROW ST.

DETROIT 11, MICH.

When inquiring specify CP 2139 — see handy form pages 2-3

## BARREL DUMPER

**FOR  
HANDLING  
A BARREL,  
DRUM OR  
SKID**



An efficient method of lifting and dumping barrels is provided by the Economy barrel dumper. A special cradle and tilting winch holds the barrel at any angle for draining.

Cradle and winch can be detached for skid handling, using the platform arms alone. The Economy line of portable lifters range from 500 lbs. to 5000 lbs. capacity and up to 60 ft. lift. Special equipment engineered. Complete catalog on request.

**ECONOMY ENGINEERING CO.**

2691 W. Van Buren St., Chicago 12, Ill.

When inquiring specify CP 2140 — see handy form pages 2-3

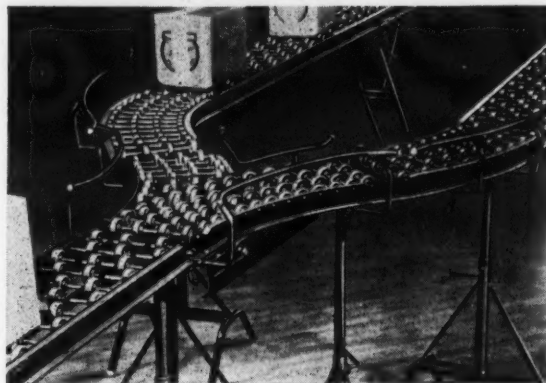
AUGUST, 1947

## Materials Handling

opposite, with one line of conveyor parallel to the main line, the other 90° to right or left of main line.

**DESCRIPTION** — A modification of the "spur curve," the switch is "Y" shape, with lines curving 45° in opposite directions. A complete set of adjustable guard rails is furnished as standard equipment.

Control is effected by a manually-operated lever similar in principle and action to previously introduced "spur



Y-switch curve mounted for parallel flow

curve." Lever actuates a lever-and-cam mechanism to raise steel switch plate on which is positioned a set of independently-mounted conveyor wheels.

When these wheels are projected above level of wheels on right line of "Y," packages roll to left. When wheels are lowered, packages roll to right. Switching mechanism is simple, rugged design and 12-gauge steel frame is welded to form a strong, rigid unit.

Manufactured in standard widths of 12 and 18". May be supported on adjustable stands similar to those used on straight sections of manufacturer's design. Each terminal of the curve is equipped with universal connections to permit coupling with either end of straight section.

THE RAPIDS-STANDARD COMPANY, INC., Dept. CP, Dept. YC-92, 308 Peoples Nat'l. Bank Bldg., Grand Rapids 2, Mich.

When inquiring specify CP 2141 — see handy form pages 2-3

★

## Catalog Covers Complete Line of Wrapping, Packaging Equipment

A complete line of wrapping and packaging equipment with speeds ranging from 30 to 120 packages per minute is graphically presented in a 20-page catalog.

Flow charts which itemize each operation from start to finish are included with descriptions of the various models. Literature explains "continuous flow" principle which eliminates jerky stop and start motions, making possible maximum production speeds with minimum maintenance. Describes how many operations formerly requiring several machines are combined into one.

Equipment is shown for many types of food and chemical products.

BATTLE CREEK BREAD WRAPPING MACHINE COMPANY, Dept. CP, Battle Creek, Mich.

When inquiring specify CP 2142 — see handy form pages 2-3

## 2 STEPS in Cutting Costs of handling bagged material

**1 Install BAKER Fork Truck and Pallets**  
This will eliminate the back-breaking labor of handling individual bags manually, cut time and cost of car-loading or unloading, add storage space by tiering, and speed inter-department handling.

**2 Get Suppliers to Palletize shipments**  
This will cut time and cost of unloading incoming material. Supplier will make corresponding savings at shipping end with Fork Truck-Pallet combination. Damage in transit minimized.



Baker Fork Truck storing pallet loads of bagged starch in storage. Note method of "locking" forks to prevent side-slipping.

At this typical plant, raw materials such as clay, starch and talc, are received in bags. A carload contains some 1600 bags, weighing about 50 lbs. each. These must be unloaded, stored, and transported to process departments.

From the receiving point bags are carried in unit loads on pallets by fork truck making savings each time the material is handled and increasing warehouse capacity by high tiering. But bags not received on pallets must first be palletized — requiring about 14 man-hours per car.

Arrangements are being made with all suppliers to ship in unit loads, on pallets. Such carloads can be completely unloaded and stored in not much over two hours. Since no individual handling of bags is required, heavy labor is eliminated, and damage from handling and shipping is minimized. Comparable savings are realized by suppliers at the shipping end.

Let a Baker Material Handling Engineer show you how you can save money with fork trucks and pallets.

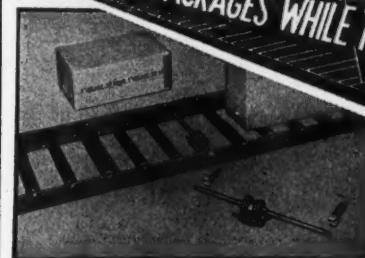
BAKER INDUSTRIAL TRUCK DIVISION of The Baker-Rauland Company  
2163 West 25th Street • Cleveland, Ohio

**Baker INDUSTRIAL TRUCKS**

When inquiring specify CP 2143 — see handy form pages 2-3

## CONVEYOR-CODER

**MARKS PACKAGES WHILE THEY ROLL**



**AUTOMATICALLY IMPRINTS CARTONS . . .  
CASES . . . BOXES on ROLLER CONVEYOR**

Replace a standard roller on your conveyor with CONVEYOR-CODER and — PRESTO! — you get automatic marking of shipping containers without labor, . . . extra time, . . . power. CONVEYOR-CODER imprints clean, sharp code-dates, control numbers, content information, etc. on packages as they roll along conveyor. Mark is continuous and may be repeated on individual container. Simple to install — does not interrupt container movement.

Interchangeable rubber type feature permits quick changes of imprint legends when necessary. CONVEYOR-CODER automatically re-inks type with permanent, quick-drying inks available in different colors.

Write today for descriptive literature. . . and state exact nature of your marking needs.

**ADOLPH GOTTSCHO, INC. MARKING EQUIPMENT**

195 Duane St., New York 13, N. Y.

\* MACHINES TO MARK WHATEVER YOU MAKE \*

When inquiring specify CP 2144 — see handy form pages 2-3

Page 15

## MAYBE YOU'RE NOT INTERESTED IN PINEAPPLE JUICE

...but

you may have the same problems of contamination, corrosion, suspended solids and mechanical remote control which prompted the engineers of The Dorr Company to select Grinnell-Saunders Diaphragm Valves for the Dorco De-Ionization System for the new plant of the Hawaiian Pineapple Co. in Honolulu.

## GRINNELL-SAUNDERS DIAPHRAGM VALVES

### ISOLATED WORKING PARTS

The flexible diaphragm isolates working parts of the valve from the fluid, preventing contamination or corrosion.

### CORROSION-PROOF LININGS

A selection of diaphragm materials and also body linings of glass, porcelain, lead, rubber or synthetics to suit service requirements.

### STREAMLINED FLOW... POSITIVE CLOSURE

Streamlined passage without pockets minimizes friction. Large area of contact of the diaphragm, plus diaphragm resilience, permit positive closure even when solids are trapped.

Write for catalog—  
Grinnell-Saunders  
Diaphragm Valves

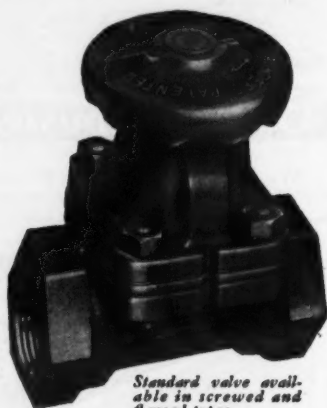
GRINNELL COMPANY, INC.

Executive Offices:  
Providence 1, R. I.

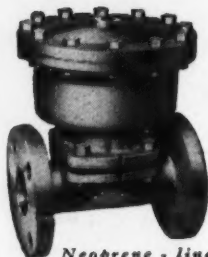
Branch Warehouses  
in principal cities.

# GRINNELL

WHENEVER PIPING IS INVOLVED



Standard valve available in screwed and flanged types.



Neoprene-lined, piston-operated valve for mechanical remote control.

## Materials Handling

### Flange Unit Mounts Against Vertical, Horizontal Frames

Fully self-aligning device has deep groove precision ball bearing, long inner race

**USES** — Ball bearing flange unit for use in various materials handling applications. Suitable for mounting against vertical or horizontal frames and supports.

**DESCRIPTION** — SC ball bearing flange bearing is fully self-aligning. Has a deep groove precision ball bearing with long inner race, improved labyrinth seals.

Back face of housing is machined, and filling slots also are at back, providing added protection against external dust and dirt. Unit is in addition to complete line of ball bearings available in pillow blocks, hanger bearings, take-up and cylindrical units as well as steel frame ball bearing take-ups.

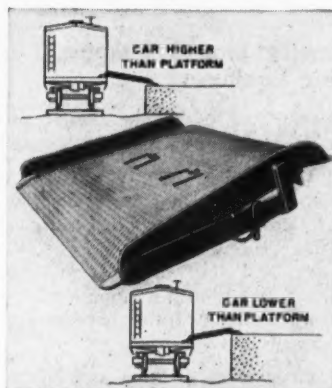
DODGE MANUFACTURING CORPORATION, Dept. CP, Mishawaka, Ind.

When inquiring specify CP 2146 — see handy form pages 2-3

★

### Unload Palletized Freight, Over Bridge Ramps, by Lift Truck

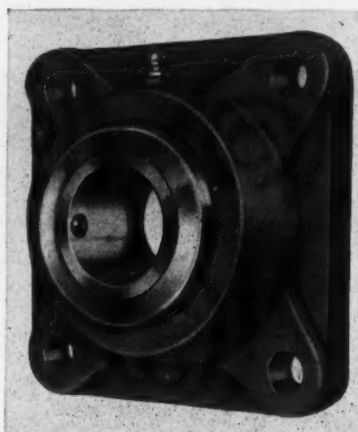
Platform and car-to-car models span 5 to 58" gaps; adjust to 7" height differences



One-man loading ramp

**USES** — Bridge-type loading ramps for use with fork trucks on railroad sidings. For fast loading or unloading of palletized freight cars. For moving heavy equipment and materials between a warehouse door or open platform and a freight car, or between two freight cars.

**FEATURES** — Using any standard fork lift truck, one man can unload a palletized car. Placing and removal of ramps requires no physical lifting.



Ball bearing flange unit



HANDLE BOTH  
BULK and PACK-  
AGED MATERIAL  
with the same  
CONVEYOR

... from packaged material conveyor to bulk material conveyor in a matter of minutes!



It's the standard Tote-All packaged material conveyor used by the Chemical and process industry to handle boxes, cartons, bags, crates, etc. with flanged side-boards and hopper quickly bolted in position to make a heavy duty bulk material conveyor for sand, coal, gravel and dry bulk material up to 14" top size. One conveyor for all conveying jobs—saves time, money and equipment.

Two lengths—14 ft. and 20 ft., 10-inch belt with rubber or steel cleats. Gasoline or electric power unit optional. Tote-All combination conveyor may be had with or without Trail-Hoist (combination trailer and hydraulic lifting device). Easily moved from one conveying job to another. Get details from Material Movement Industries, Inc., 310 S. Michigan Ave., Chicago 4, Ill.

ASK FOR BULLETIN C-11

**material movement industries**  
... for lowest cost material handling

When inquiring specify CP 2147 — see handy form pages 2-3



HYDRAULIC  
DUMP  
CONTROL

Loads can be dumped gradually or completely — at any height — and the bucket retracted hydraulically.

New in every detail, the sturdy Model HF is setting new standards of performance in digging, loading, carrying chemicals, fertilizer or any bulk material. Equipped with an entirely new fully reversible 4 speed transmission, the Model HF combines practical loading speeds with minimum of shifting. Hough Payloaders incorporate over 25 years of material handling engineering experience and are now available in three sizes — 10½ cu. ft. Model HA, the New ¾ yd. Model HF and the big 1 yd. Model HL. Send for complete information today.

THE FRANK G. HOUGH CO.  
MATERIAL HANDLING EQUIPMENT SINCE 1906  
736 Scarsdale Ave. Libertyville, Ill.

When inquiring specify CP 2148 — see handy form pages 2-3

CHEMICAL PROCESSING Preview

When inquiring specify CP 2145 — see handy form pages 2-3



## Materials Handling

Can be placed and secured by one person in "less than two minutes."

Made for spanning various-width gaps. Adjustable to various height differentials between car and platform.

**DESCRIPTION** — Load capacity, 15,000 lbs. Transported by means of convenient droptype lift handles which fit forks of any standard fork lift truck. Truck sets ramp in position, forks are withdrawn, and lift handles drop into place, providing flush riding surface for truck. Locking pins firmly secure ramp in position.

Various sizes and models span gaps from 5 to 58", with height differentials up to 7". Flare or rectangular-shape for specific needs. Riding surface is non-slip steel plate reinforced with shock plates at corners. Side stringers add rigidity and act as safety guard.

Circular BR7, with enclosed survey and specification sheet, facilitates selection of correct size and type.

ELIZABETH IRON WORKS, Dept. CP, P. O. Box 360, Elizabeth B, N. J.

When inquiring specify CP 2149 — see handy form pages 2-3

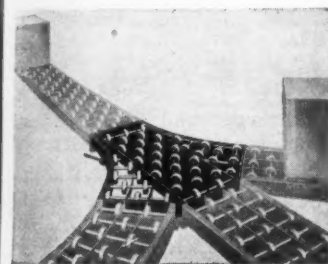
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## 3-Way Conveyor Switch Turns Left, Right, or Straight Ahead

*Hand lever "aims" roller wheels in desired direction, speeds sorting*

**USES** — Three-way conveyor switch for sorting packages according to size, destination or any other classification in warehouses, production lines or on loading platforms. For Roll-or-Wheel conveyors.

**FEATURES** — Instantly adjusts to provide flow of materials in any of



Three-way conveyor switch

three directions without manual guidance. Speeds loading and unloading. Saves manpower. Requires no maintenance or adjustment. Rugged and simply constructed.

**DESCRIPTION** — Hand lever instantly changes direction of flow to left, right, or straight ahead, without moving conveyor in any way.

To do this, accurately aligned "pivot" wheels in center portion of switch are integrated by a simple arrangement of levers controlled at a single point. Movement of lever causes corresponding movement of pivot wheels, which turn into position, receiving the part or package and changing its direction as desired.

Hand lever can be extended for remote control, if required. Pivot wheels in center section of switch are raised slightly above level of wheels in spin portion of unit to eliminate drag in switching. Overall weight, 56 lbs. Manufacturer's rustproof "Red Wheels" are standard on all wheels sections, including switch.

E. W. BUSCHMAN COMPANY, INC., Dept. CP, Cincinnati 32, Ohio.

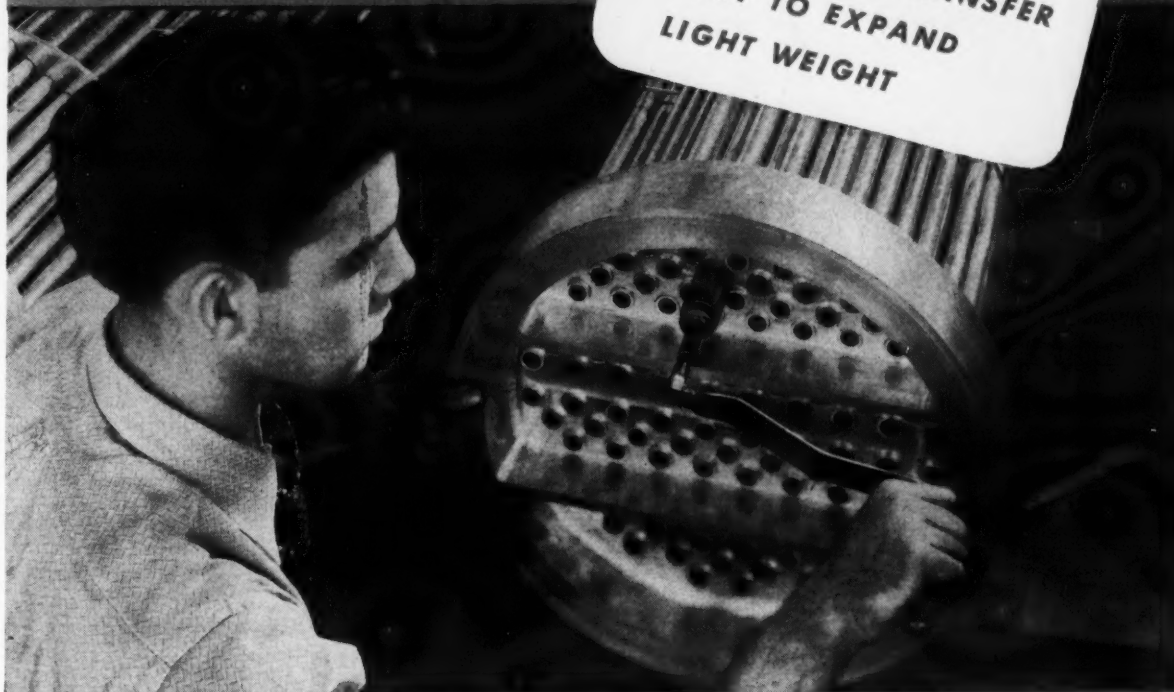
When inquiring specify CP 2150 — see handy form pages 2-3

AUGUST, 1947

## ALCOA ALUMINUM CONDENSER TUBES

cost less! And give you these advantages . . . .

HIGH RESISTANCE  
TO CORROSION  
RAPID HEAT TRANSFER  
EASY TO EXPAND  
LIGHT WEIGHT



Alcoa Alclad Aluminum Condenser Tubes are specifically designed to resist corrosion, especially under conditions which might normally cause perforation. Outstanding performance has been obtained with many types of aggressive waters on the interior of these tubes, and they have been successfully used with ammonia, hydrogen sulfide, carbon dioxide, and many organic compounds.

Aluminum has high thermal conductivity...condensers and heat exchangers work at high efficiency.

It's easy to expand the tubes into the tube sheets

. . . aluminum weighs only one-third as much as other metals . . . you can save on erection and handling costs.

And most important! Alcoa Aluminum Condenser Tubes cost less than other tubes. Compare their cost with that of the tubes you are now using.

May we tell you more about how and where you can use Alcoa Aluminum Condenser Tubes? Write to ALUMINUM COMPANY OF AMERICA, 1731 Gulf Building, Pittsburgh 19, Pennsylvania. Sales offices in leading cities.

MORE people want MORE aluminum for MORE uses than ever

# ALCOA FIRST IN ALUMINUM

IN EVERY COMMERCIAL FORM

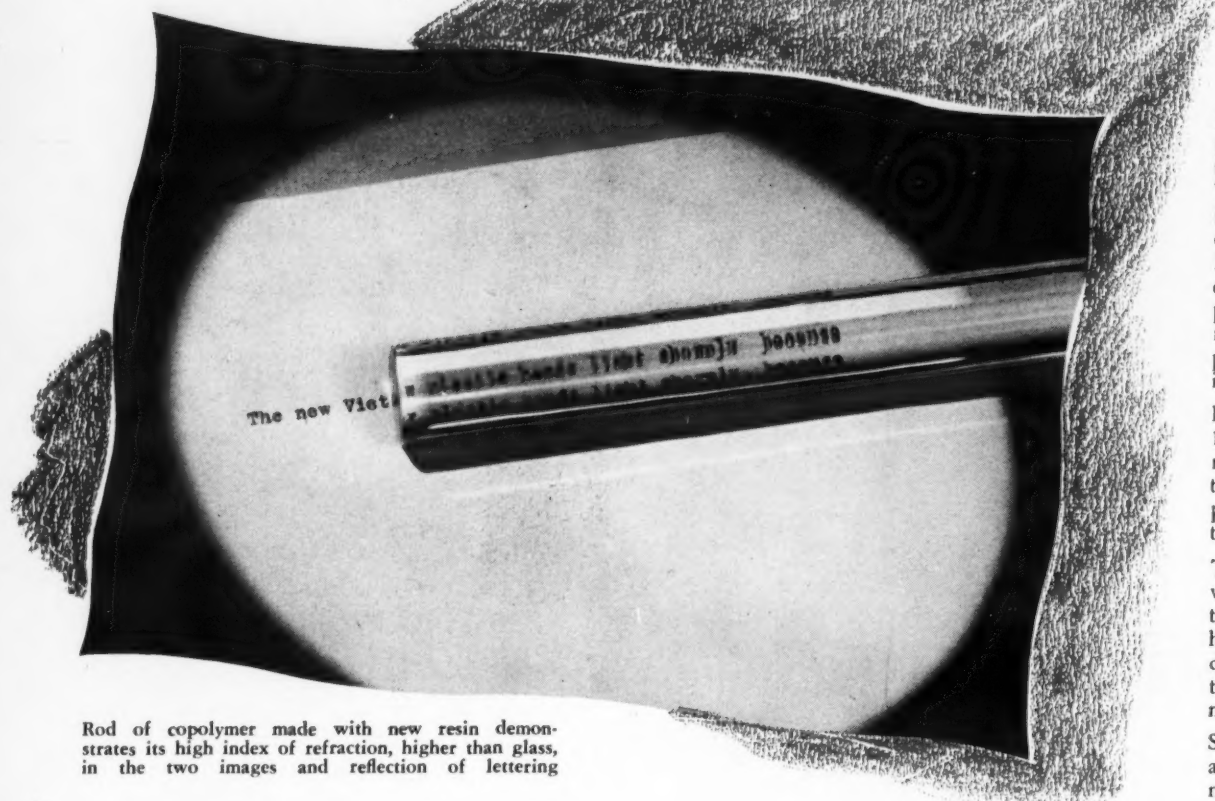
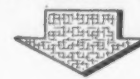


When inquiring specify CP 2151 . . . see information request blank, pgs. 2-3

Page 17

# HARDNESS, FLAME RESISTANCE AND OPTICAL PROPERTIES Combined in New Plastic

*New Materials*



Rod of copolymer made with new resin demonstrates its high index of refraction, higher than glass, in the two images and reflection of lettering

*Coatings, sheets, laminates, chemical equipment are indicated uses; complements other plastics*

**USES** — This new material is a colorless liquid in its monomeric form. It polymerizes to become a transparent, thermosetting, hard and strong resin which has been named V-Lite. The liquid monomer copolymerizes with other monomers, including methyl methacrylate, vinyl acetate, diallyl phthalate, diallyl succinate, diallyl oxalate and unsaturated alkyd resin mixtures. Completely new sets of properties are found in the copolymers when appreciable amounts of this new material are present.

All properties have not been investigated but initially the outstanding ones are: increase in flame resistance, increase in index of refraction, decrease in solubility and increase in hardness. Suggested applications include flameproofing coating for flammable decorations or veneers; improving appearance of common plastics as well as producing clear sheets of plastics with an adjusted index of refraction. Discovery of this property led to fabrication of laminates using layers of glass cloth in adjusted copolymer of methyl methacrylate and V-Lite. Almost completely transparent sheets of great strength can be made because of the excellent adherence of the new material to the glass fibers.

The material's hardness suggests its use for machined parts and for optical goods. It has been suggested for use in windows of passenger aircraft. Also its insolubility indicates its serviceability in chemical equipment and storage battery cases.

However, the greatest possibilities of the material will probably be realized in its use as a complement to other plastics.

**FEATURES** — Flame resistance of pure diallyl phenyl phosphonate is such that it extinguishes itself within 30 seconds of removal of flame. Methyl methacrylate acquires very good flame resistance when copolymers with 20% or more of the resin are formed.

Methyl methacrylate and vinyl acetate are changed by the action of V-Lite to become thermosetting instead of thermoplastic.

This resin has proved stable when immersed in 30% sulphuric acid at 150 degrees F. for more than 5 days.

**DESCRIPTION** — This new plastic material, diallyl phenyl phosphonate, upon polymerization becomes a transparent, thermosetting resin which has been named V-Lite. Polymerization of the material itself is speeded in the presence of 2 to 3 percent organic peroxide as a catalyst, dissolved in the original liquid. Hardest resins have been obtained by using a mixture of 3 percent benzoyl peroxide plus 0.5 percent tertiary butyl perbenzoate as a catalyst mixture. Clear sections of the resin  $\frac{1}{8}$  to  $\frac{1}{4}$  inch in thickness can be made at atmospheric pressures by curing  $2\frac{1}{2}$  to 3 hours while raising temperature from 85 degrees C. to 130 degrees C.

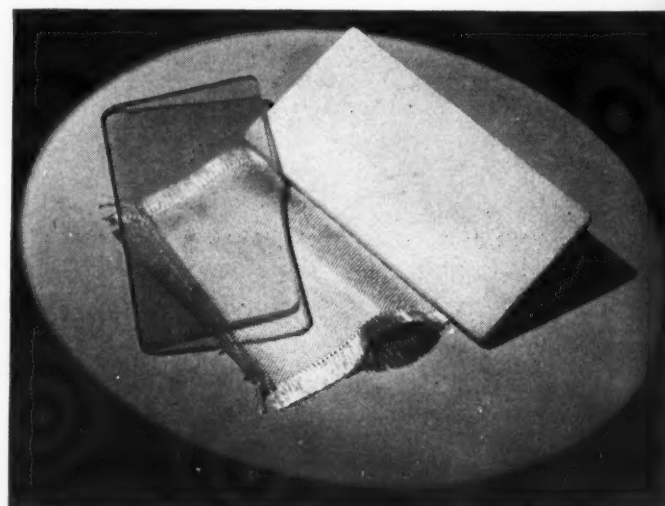
Index of refraction of the pure plastic is approximately 1.57, a figure higher than any but optical glass. The resin is insoluble in ether, acetone, benzene, butyl acetate, naphtha, alcohol, carbon tetrachloride, water, 5 percent hydrochloric acid solution and 5 percent caustic soda solution.

The Rockwell hardness of the pure Victor resin at a value of M-95 is not appreciably higher than some plastics. The copolymers with vinyl acetate, however, exhibit hardness as high as M-99.9. With 40 percent diallyl phenyl phosphonate a vinyl acetate copolymer that is hard, tough, and colorless proved it could be machined and buffed to a polish without gumming.

Semi-works production has begun and should furnish appreciable amounts of resin for use in further development.

VICTOR CHEMICAL WORKS, Dept. CP, 141 W. Jackson Blvd., Chicago 4, Ill.

When inquiring specify CP 2152 — see handy form pages 2-3



New V-Lite plastic used in laminate on left makes layers of glass cloth practically transparent

CHEMICAL PROCESSING Preview

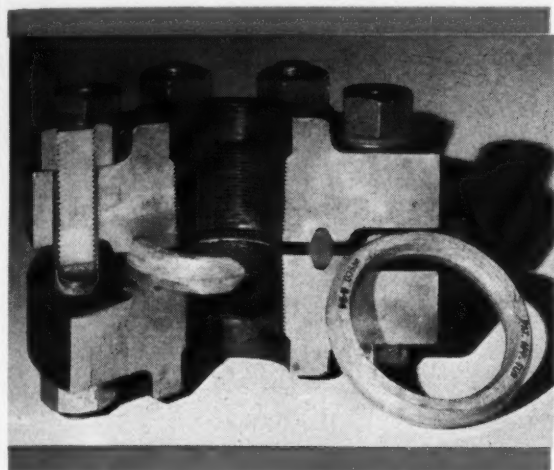


## Gasket Insulates Well Structure from Electric Currents

Now being installed by pipe lines to stop galvanic destruction of well casings

**USES** — Designed primarily to aid in solving oil and gas well corrosion problems. The high dielectric strength of this gasket, when used in ring sealed joints, makes it possible to provide insulation against the stray and long line electrical currents that flow from the connecting pipe line system into the uninsulated well structure. Such currents frequently destroy the outsides of well casings at the rate of 20 pounds of metal per ampere year.

Another important function of this Fibreglas-plastic gasket is to eliminate corrosion at the joint, caused by



Cut-away view of installation; one of gaskets is shown at right

the active galvanic cell set up at the joint by dissimilar metals (a metal ring gasket and the flange metal) in the presence of a low-resistance electrolyte. Such galvanic corrosion is particularly severe in high-pressure gas condensate well structures.

**FEATURES** — Gasket can be re-used without being machined. The gasket is designed to stand rough handling in the field and still make a perfect joint. It is unaffected chemically by any of the gases and fluids encountered in the production and transmission of oil and gas.

**DESCRIPTION** — The "Pesco" Ring Gasket is now being used by the United Gas Pipe Line Co. in insulating oil and gas wells, replacing metal rings with these new gaskets and using Micarta sleeves and washers around flange bolts. As a preliminary step, measurement of current flow into some 125 uninsulated wells has been completed. In every instance, there was appreciable flow in the direction of the well structure. The flow into many well structures was found to be over 3 amperes. In one well, the flow exceeded 11 amperes. In one Gulf Coast field, the total current flow into 34 wells amounted to 125 amperes.

The "Pesco" Fibreglas-plastic gasket has a flat compression strength of 66,245 psi, an edge compression strength of 15,757 psi, and a tensile strength of 48,272 psi. Temperature limit is 480 degrees F.

PLASTIC ENGINEERING & SALES CORP., Dept. CP, Fort Worth, Texas.

When inquiring specify CP 2153 — see handy form pages 2-3

AUGUST, 1947

# If you are interested in Hydrogenation

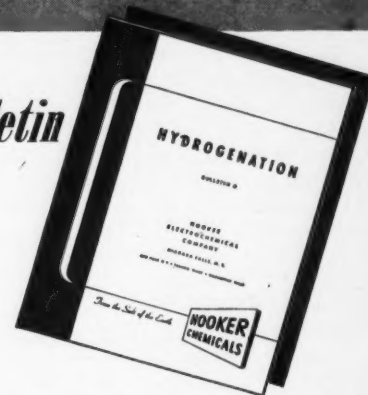
## You will be interested in this bulletin

Whatever the stage of your "thinking" regarding the hydrogenation of your products or raw materials, you ought to have a copy of the new Hooker Hydrogenation Bulletin. This Bulletin describes the hydrogenation facilities of Hooker's two plants, the types of hydrogenations we are doing, the procedure for both preliminary and laboratory evaluation and the help that Hooker hydrogenation experts can give you.

Hooker has been carrying out hydrogenations at pressures as high as 2500 p.s.i. Careful supervision and the use of high purity hydrogen, a co-product from the electrolytic production of chlorine and caustic soda, assure commercial process-

ing with no diminution of product purity.

Demands on Hooker facilities for hydrogenation are increasing continually. If you are considering hydrogenation, even remotely, we suggest you send for a copy of this Hydrogenation Bulletin, No. 8. A request on your company letterhead will bring it to you. Your next step might well be a discussion of your needs with us so that when ready, your hydrogenation requirements may be fulfilled without delay.



## HOOKER ELECTROCHEMICAL COMPANY

15 Forty-Seventh St., Niagara Falls, N. Y.  
New York, N. Y. Wilmington, Calif. Tacoma, Wash.

Caustic Soda  
Chlorine

Paradichlorobenzene  
Sodium Sulfide

Muriatic Acid  
Sodium Sulphhydrate

# HOOKER CHEMICALS

When inquiring specify CP 2154 . . . see information request blank, pgs. 2-3

## Materials

### Resist 6-Month Immersions in Various Reagents

*Anti-corrosive coatings, in 9 colors, protect metal, wood, concrete*

**USES** — Series of anti-corrosive coatings for protecting metal, wood and concrete surfaces from deteriorations caused by exposure to moisture, acids, alkalis and other disintegrating elements.

For industrial use, particularly in chemical and steel plants, food packing houses, dairies and breweries.

**FEATURES** — Fast-drying. Non-corrosive. Non-toxic and free from objectional paint odors. Good thermal stability and aging characteristics. Highly resistant to abrasion and scrubbing. Does not oxidize or become brittle.

**DESCRIPTION** — P-5 Co-Polymer finish, available in nine colors. Manufacturer reports that in tests, films of this material .0025" thick, after immersion in various reagents for six months, were found "unaffected when removed."

Reagents used are reported as 3% acetic acid, 10% sulphuric acid, 10% hydrochloric acid, 10% nitric acid, 29% ammonium hydroxide and 10% sodium hydroxide.

THE WATSON-STANDARD COMPANY, Dept. CP, Pittsburgh 12, Penna.

When inquiring specify CP 2155  
— see handy form pages 2-3

★

### Prevents Rot, Mold, Termites In Wood

*Oily, penetrating preservative will not bleed through paint*

**USES** — Preservative for preventing rot, mold, bacteria and termites in all types of wood. Especially useful for preventing rot caused by bacteria or fungi where wood is in contact with ground or exposed to dampness.

For flooring, foundations, fences, piling, retaining walls, window sash, outbuildings, beverage cases, etc.

**FEATURES** — Will not bleed through subsequent coats of paint, including white. Thin consistency

## FOR YOUR INFORMATION

*Santomerse No. 1: Reg. U. S. Pat. Off.*

Present and prospective users of synthetic detergents will find considerable information of value in this comprehensive bulletin now available. Copies will be sent on request.

Santomerse No. 1 is truly the modern all-purpose synthetic organic detergent and wetting agent. It possesses in unique combination the following valuable properties: wetting out, dispersing, emulsifying, penetrating and cleaning action. It does not have the limitation suffered by soap since it functions satisfactorily in hard or soft water or in acid or alkaline solutions.

Although practically neutral in itself, it can be used effectively at a pH of 1 or 12, and is efficient in water varying in hardness from 0 to 1,500 ppm.

Santomerse No. 1 is an alkyl aryl sulfonate. It is manufactured in dry form of uniform quality, is free flowing and can be easily blended with other materials. It is readily soluble in cold or warm, soft or hard water.

Greatly expanded plant capacity will presently make Santomerse No. 1 available in increased quantities, in flake and spray-dried bead form. The bead form

has low bulk density and is particularly suited to packaging for household use. The flake form has numerous commercial and industrial applications.

Send for your copy of this new Application Data Bulletin No. P-118. Also request copies for others in your organization who may be interested in getting complete data on this modern, all-purpose detergent and wetting agent. Contact the nearest Monsanto District Sales Office or write MONSANTO CHEMICAL COMPANY, Phosphate Division, 1704 South Second Street, St. Louis 4, Missouri.



## News of Monsanto Chemicals and Plastics for the Process Industries... August, 1947



Lower ranges of volatility are being established by a series of new Monsanto plasticizers, now well advanced in the process of development. Their greater permanence will add increased usefulness to many applications.

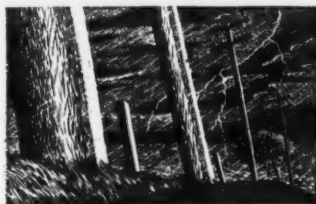
In addition, extensive field tests and laboratory findings indicate that these new Monsanto plasticizers will also provide high standards of compatibility, flexibility, fire retardance, heat and light stability, elasticity, abrasion resistance.

For the present, most of these Monsanto plasticizers are not commercially available, since their production depends largely on chemicals now in short supply. However, Monsanto research and field tests are being continued with emphasis on those new plasticizers that can be produced from raw materials most likely to be available soonest, in greatest quantities.

If you have any present or prospective plasticizer problems, Monsanto may be able to help you with application suggestions.

### SAMPLES AVAILABLE OF PRESENT MONSANTO PLASTICIZERS

Aroclors,\* Dibutyl Phthalate, Diethyl Phthalate, Dimethyl Phthalate, Diphenyl Phthalate, HB-40, Ortho-Nitrobiphenyl, Santicizer\* 1-H, Santicizer 3, Santicizer 8, Santicizer 9, Santicizer B-16, Santicizer E-15, Santicizer M-17, Santicizer 140, Triphenyl Phosphate, Tricresyl Phosphate.



### Dependability in Wood Preservation SANTOPHEN 20

Due to precise manufacturing control, the chemical and biological properties of Santophen 20\* — Monsanto's pentachlorophenol — are exactly reproducible pound after pound, year after year. This assured uniformity means that the proved effectiveness of Monsanto's outstanding wood preservative is always constant.

The controlled uniformity of Santophen 20 is only one of its many superior qualities that are being demonstrated more and more in wood preservation. It gives constant assurance of the high toxicity, low volatility and low water solubility of this widely accepted wood preservative.

Suggestions for formulating, and other valuable information and tabular data, are contained in Monsanto's book "Wood Preservation with Santophen 20 in Oil Solutions by Pressure Processes." Send for your copy.

\*Reg. U. S. Pat. Off.



SERVING INDUSTRY... WHICH SERVES MANKIND

MONSANTO CHEMICAL COMPANY, 1704 South Second St., St. Louis 4, Missouri... District Sales Offices: New York, Chicago, Boston, Detroit, Cleveland, Cincinnati, Charlotte, Birmingham, Houston, Los Angeles, San Francisco, Seattle. In Canada: Monsanto (Canada) Limited, Montreal.

## Materials

assures maximum penetration. Will not freeze, according to manufacturer. Stores indefinitely. Cleans off brushes with any paint brush cleaner.

**DESCRIPTION** — An oily liquid, deep green, with odor similar to burlap. Dries to a light green.

For best results, apply to bare wood. Where this is impossible, surface coating, including old paint, should be sand-papered or scraped until wood is exposed. Then, apply by brush, brushing in thoroughly and covering all sides, ends and edges. One qt. covers about 200 sq. ft., depending on porosity of wood.

48 hrs. after drying, wood can be painted white or any color, if desired. May be removed by use of paint thinner, naphtha, kerosene or turpentine. Has same degree of flammability as other paints.

Under adverse conditions as, for example, when submerged continually under water, normal life of wood will be extended minimum of 6 months, manufacturer reports.

INTERCHEMICAL CORPORATION,  
Trade Sales Division, Dept. CP, Fair  
Lawn, N. J.

When inquiring specify CP 2156  
— see handy form pages 2-3

★

### Stainless-clad Steels Provide Corrosion Resistance at Lower Cost

Important steps in producing stainless-clad steel are described and illustrated in 14-page bulletin.

Layer of stainless steel is permanently and uniformly bonded to a backing plate of carbon or low-alloy steel. Type and thickness of cladding is determined by special requirement of each application.

Photographs illustrate several types of applications. Corrosion data, size and weight tables, and descriptions of the five most-widely used types are included. Bulletin 338 describes material fully.

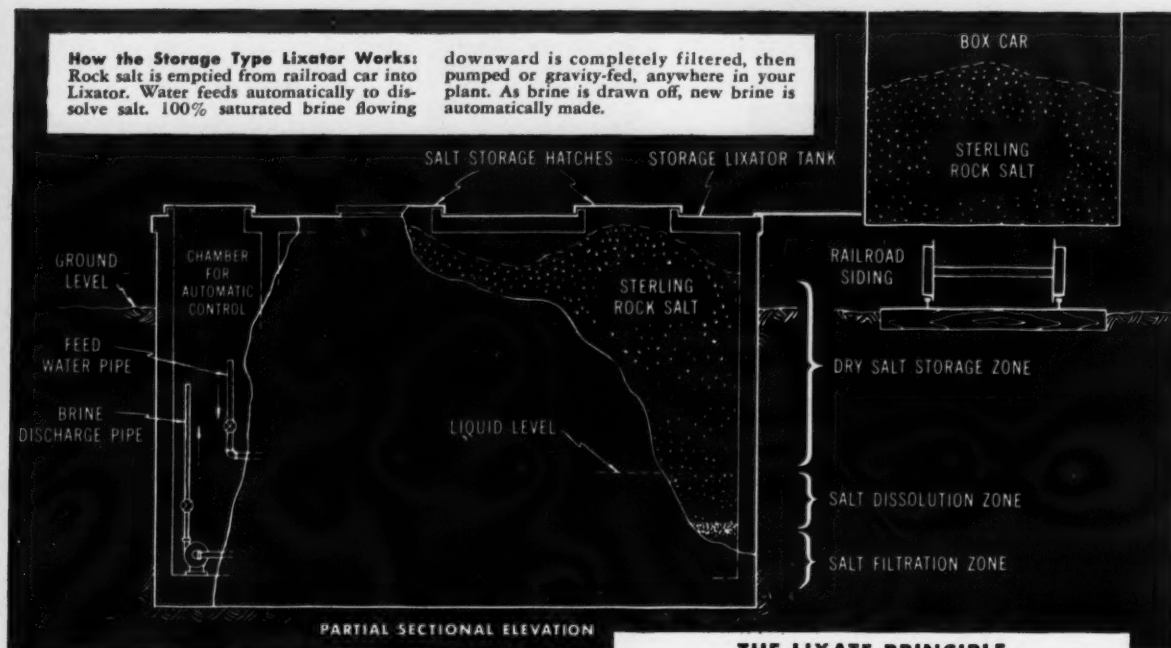
LUKENS STEEL CO., Dept. CP, Coatesville, Penna.

When inquiring specify CP 2157  
— see handy form pages 2-3

For more information on product at left, specify CP 2158  
... see information request blank between pages 2-3.

# For a Continuous Supply of Clean, Crystal-Clear, 100% Saturated BRINE IN GREAT VOLUME

## The Storage Type Lixator Provides Maximum Savings!

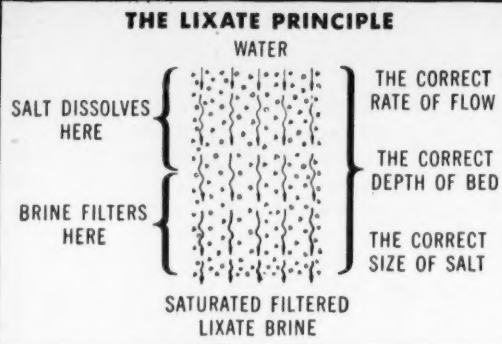


**Do YOU USE brine in large quantities? Then we urge you to consider the important economic advantages of the Storage Type Lixator!**

It drastically lowers production costs...virtually wipes out the costs of handling, storing and measuring salt and of making, distributing and diluting brine...uses economical Sterling Rock Salt.

An exclusive development of International Salt Company engineers, the Storage Type Lixator centralizes all salt storage and brine-making operations at one convenient location, and distributes 100% saturated, crystal-clear brine by pipe lines to every point of use in your plant. At any point of use, the brine is quickly and easily diluted as required.

Through its engineering staff, International offers complete engineering counsel on designing and building



the Storage Type Lixator to fully meet your specific brine requirements. A representative thoroughly familiar with the uses of brine in your own industrial field will gladly give you complete information. Inquiries are cordially invited.

For more information about the Storage Type Lixator, simply fill in and mail this coupon to:

INTERNATIONAL SALT COMPANY, INC.  
Dept. CP-8, Scranton, Pa.

Name \_\_\_\_\_

Firm \_\_\_\_\_

Street \_\_\_\_\_

City \_\_\_\_\_ State \_\_\_\_\_

**The LIXATE Process**  
Reg. U. S. Pat. Off.  
for making brine  
**INTERNATIONAL SALT COMPANY, INC.**  
Scranton, Pa.

When inquiring specify CP 2159 . . . see information request blank, pgs. 2-3

## Materials

### Methylal, Versatile Solvent, Now Available in Large Quantities

*Diether boils at 42.3° C., has high solvency for many resins, other organic compounds*

**USES** — Chemically useful as a methylating and wetting agent, in hydrolysis, and as a water resistant for textiles and plastics.

An effective solvent for celluloses, i.e. cellulose nitrate, ethyl cellulose, etc., also for synthetic resins such as methyl methacrylate and polystyrene. A useful solvent for organic acids, and other organic compounds.

Low boiling point suggests usage as a vaporizing solvent for various coating processes.

**FEATURES** — Said to be comparable to diethyl ether or acetone in many respects, and for certain definite purposes.

Surprising is its ability to dissolve certain inorganic compounds. Has slightly higher acetylene solubility than acetone, manufacturer reports.

**DESCRIPTION** — Methylal, dimethoxy-methane, now available to US chemical market in large quantities for the first time. Boiling point, 42.3° C. Water solubility, 33 grams/100 cc at 20° C. Easily salted out of solution. Stability toward alkalies. Color, water white. Made from natural gas.

Complete details, including physical properties and tentative specifications, contained in New Product Bulletin N-08-1.

CELANESE CHEMICAL CORPORATION, Division of Celanese Corporation of America, Dept. CP, 180 Madison Ave., New York 16, N. Y.

When inquiring specify CP 2160 — see handy form pages 2-3

★

### Converts Tap Water into Useful Deodorizer and Germicide

*Capsuled chemical aids in wet manufacturing, preserves base products, disinfects*

**USES** — Dry chemical compound for converting tap water into an effective germicide for general disinfecting, deodorizing, sanitizing and sterilizing.

For preventing algae, yeast, mould growth and foul odors in many wet manufacturing operations.

As a preservative, small amounts are added to base products such as industrial gelatins, casein paints and adhesives, animal glue, starch pastes, sizings, water-soluble coolants or cutting oils, resins and emulsions. Disinfects and deodorizes floors, showers, storage bins, mixers, conveying equipment, drains, sump sinks, waste food receptacles, goggles, respirators, eating and cooking utensils, clothing and hands of workers, protecting surfaces against recontamination. Also for killing communicable disease germs and most parasitic bacteria. For industrial wounds, scratches and primary burns, or as a sponge cup germicide.

Although manufacturer does not recommend for food preservation, product has germicidal and sanitary applications for food processors and manufacturers of food wrappings.

**FEATURES** — Handy capsules, used in recommended

CHEMICAL PROCESSING Preview



solutions, are said to be harmless to skin, materials and painted surfaces. Described as being superior in germicidal power to usable solutions of carbolic acid, iodine, formaldehyde, hypochlorites, arsenic or mercury.

Effective in low concentrations. Objects thus sanitized may be air-dried without rinsing. Leaves no odor, taste or toxic residue. Kills most odor-forming bacteria. Used in a variety of base products, its bacteriostatic, deodorizing and preservative powers are carried over to end use admixture, protecting against putrefaction.

Penetrates minute crevices. Used as directed, it is reported to destroy organisms which are unaffected by heat alone at 170° F. Unaffected by freezing.

**DESCRIPTION** — Prescribed solutions are odorless, colorless, non-volatile, practically tasteless. Capsules of dry chemical are dissolved in tap water, per directions. Non-selective and mildly alkaline, remaining stable over wide temperature range. Elevated temperatures greatly increase potency.

One capsule in 5 gals. of water makes economical, effective sanitizer for floors, bins, etc. Stronger solutions recommended where speed is required or for sewers and other heavy duty applications. Manufacturer recommends one capsule to 2 gals. of water for irrigating and sanitizing cuts and scratches. Has residual effect similar to iodine, but with greater germicidal power, according to manufacturer.

Contact period necessary for various concentrations to be effective at room temperature varies from 1 to 5 min's. for one capsule per gal. of water up to 20 or 30 min's. for 1 capsule per 5 gals. of water. Contact period of 15 min's at 170° F. required for complete sterilization.

SERVICE INDUSTRIES, Dept. CP, 2103-05-07 Somerset St., Philadelphia 34, Penna.

When inquiring specify CP 2161 — see handy form pages 2-3

★

## Metal-Finishing Detergent Is High-Boiling, Non-Foaming

*Forms unusually stable emulsions despite presence of acids, alkalies, etc.*

**USES** — Solvent emulsion-type detergent for use in metal finishing. For use on both ferrous and non-ferrous surfaces. Applications include power spray washers, pre-soak and still tanks, for cleaning prior to phosphatization, and as an adjunct to acid or alkali cleaners.

Also added to stamping and drawing compounds, to facilitate their removal.

**FEATURES** — High-boiling and non-foaming. Lends itself to formation of unusually stable emulsions, even in presence of acids, alkalies and other electrolytes. Easy to use. Long cleaning life. Effective and economical for a variety of applications.

**DESCRIPTION** — A combination of organic solvents and emulsifiers. Available in package sizes of 5 and 15 gals., and in 55-gal. drums.

WYANDOTTE CHEMICALS CORPORATION, Industrial Dept., Dept. CP, Wyandotte, Mich.

When inquiring specify CP 2162 — see handy form pages 2-3

AUGUST, 1947

# THE Catarole PROCESS



*Petrochemicals Ltd. announce that their plant is expected to commence operations in mid-1948. Production will include:*

PURE GRADE and NITRATION GRADE BENZENE and TOLUENE  
3°C. and 5°C. XYLENES

ALKYL BENZENES (heavy naphtha)

PURIFIED WHITE NAPHTHALENE

METHYL, DIMETHYL and TRIMETHYL NAPHTHALENES

High Purity: ANTHRACENE . PHENANTHRENE . PYRENE  
CHRYSENE . ACENAPHTHENE . FLUORENE

PITCH FOR ELECTRODE COKE

ETHYLENE and ETHYLENE DERIVATIVES and INTERMEDIATES,  
including: ETHYLENE CHLORHYDRIN (ANHYDROUS) .  
ETHYLENE OXIDE . ETHYLENE GLYCOL . ETHYL-  
CHLORIDE . ETHYLENE DICHLORIDE

PROPYLENE and PROPYLENE DERIVATIVES and INTERMEDIATES,  
including: ISOPROPYL ALCOHOL and ACETONE

BUTADIENE, BUTENES and DERIVATIVES

*Contracts may be negotiated now. Enquiries should be addressed to:*

## PETROCHEMICALS LIMITED

ADELAIDE HOUSE . LONDON BRIDGE . LONDON, E.C.4  
TELEPHONE: AVENUE 4794 . TELEGRAMS: PETRICALS, BILGATE, LONDON

When inquiring specify CP 2163 . . . see information request blank, pgs. 2-3

# NOW...

## Buna S Latex, PRE-VULCANIZED (UBS B-1700)

- ... 2500 lbs. tensile strength minimum
- ... dry, non-tacky film
- ... no adding of vulcanizing agents ... no heat treatment necessary other than drying

### PROPERTIES

1. Dried film tensile strength ..... 2500 lbs. per sq. in. minimum
2. Dried film ultimate elongation ..... 700% to 800%
3. Viscosity ..... Thin
4. Specific gravity ..... 1.012
5. pH Value ..... 9.3 to 9.8
6. Solids content ..... 33%

### APPLICATION

1. Back coating of rugs and fabrics to impart non-slip and fibre binding characteristics.
2. Coating and impregnating of fabric, paper and wadding for strength, water resistance, and base for further coating.
3. Preparation of molds utilizing properties of flexibility and freedom from further heat treatments.
4. Dipped goods where deposition of film is complete on drying.
5. Adhesive for paper, fabric and leather where bond is improved by film deposit of cured Buna S.
6. As an additive to natural latex, as well as to buna and neoprene, for extension and modification.

**P.S.**

*It is proposed to supply pre-vulcanized Buna S Latex in a more concentrated form if the demand is great enough to warrant it.*

*Write for detailed data sheet.*

**UBS**

**UNION BAY STATE**  
*Chemical Company Inc.*

50 HARVARD STREET, CAMBRIDGE 42, MASS.

When inquiring specify CP 2164 — see handy form pages 2-3

## Materials

### Shows Promise As Intermediate for Plastics, Paints, Chemicals

*p-DI-tert-butylbenzene, available in research quantities, has additive potentials*

USES — p-DI-tert-butylbenzene, available as a research chemical.

Shows promise as intermediate in preparing various organic chemicals through nitration, sulfonation, oxidation and other reactions in producing products of interest to chemical, dyestuff, plastics, paint, varnish, synthetic fiber, textile, perfume and pharmaceutical industries.

Of interest as an intermediate in production of additives such as antioxidants for variety of industries.

DESCRIPTION — White, crystalline solid hydrocarbon. Available for research and experimental purposes in 1/4, 1 and 5-lb. containers. Physical properties and reactions contained in Circular No. 104.

STANDARD OIL COMPANY (INDIANA), Chemical Products Dept., Dept. CP, 910 S. Michigan Ave., Chicago 80, Ill.

When inquiring specify CP 2165 — see handy form pages 2-3

### Suggest Pyruvic Aldehyde for Industrial Chemical Synthesis

*Methyl glyoxal compound is useful in insolubilization reactions*

USES — Pyruvic aldehyde, or methyl glyoxal, a new chemical, has been suggested for synthesis of pharmaceuticals, dyestuffs, resin polymers and other industrial chemicals.

Useful in insolubilization reactions with protein materials such as animal glue, casein and zein.

With alcohols, pyruvic aldehyde forms dialkyl and tetraalkyl acetals, and with glycols high-boiling polymeric acetals can be made. With polyhydroxyl compounds it forms cross-linked, water-insoluble resins. It is a convenient source of pyruvic acid, important intermediate for the pharmaceutical cincophen (2-phenylquinoline-4-carboxylic acid).

DESCRIPTION — Shipped as an approximately 30% aqueous solution which is a stable, yellow liquid. Compound contains two highly reactive carbonyl groups, and undergoes most reactions typical of aldehydes.

Available in limited quantities, although larger scale production is anticipated. Complete details are contained in Form 6823.

CARBIDE and CARBON CHEMICALS CORPORATION, Dept. CP, 30 E. 42nd St., New York 17, N. Y.

When inquiring specify CP 2166 — see handy form pages 2-3

### Patterned "Lucite" Available in 36 x 48" Sheet

*Acrylic resin sheets may be sawed, drilled, polished or machined; readily formed*

USES — Patterned "Lucite" acrylic resin sheeting for use in a variety of industrial applications. Already in commercial production in a variety of trays, salad bowls,

## B. F. Goodrich Chemical Company

has for sale these GOOD-RITE chemicals

★  
In Commercial Quantities

Phenyl B Naphthyl Amine • Distilled • Commercial

Mixed Mono-and Diheptyl Diphenyl Amines

Isoepoxy Diphenyl Amine

p Hydroxy Diphenyl Amine

N-Nitroso Diphenyl Amine

Diphenyl p Phenylene Diamine

Di B Naphthyl p Phenylene Diamine

Monobenzyl Ether of Hydroquinone

Di Isopropyl Dixanthogen

Mixed Ethyl and Dimethyl Mercaptothiazoles

Mixed Aliphatic Thiazyl Disulfides

Polymerized Trimethyl Dihydro Quinoline

★  
In Pilot Plant Quantities

Dibenzyl Ether of Hydroquinone

★  
For additional information please write

**B. F. Goodrich Chemical Company** A DIVISION OF THE B. F. GOODRICH COMPANY  
Department CG-8, Rose Building, Cleveland 15, Ohio

When inquiring specify CP 2167 — see handy form pages 2-3



Several desirable territories open for direct, commission representation. Must have industrial sales experience and some knowledge of corrosion.

After exhaustive comparative tests, one of America's largest chemical companies reports: "Prufcoat has proven to be superior to any other protective coating we have tested."

Another large user writes: "Prufcoat is the only material we have found to withstand strong caustic, acid and beer ... has reduced our painting maintenance 70%."

Cut your corrosion costs with performance-proved Prufcoat ... the protective coating that gives more protection at lower cost than any other air-drying metal and masonry paint.

Write for descriptive bulletin

**Prufcoat Laboratories, Inc.**

63 Main Street, Cambridge, Mass.  
50 East 42nd Street, New York, N. Y.

### SPECIFICATIONS

- ✓ Acid-Proof
- ✓ Alkali-Proof
- ✓ Alcohol-Proof
- ✓ Oil-Proof
- ✓ Water-Proof
- ✓ Flame-Proof

Applies like paint to masonry, metal, wood.

**PRUF COAT**  
PROTECTIVE COATING

When inquiring specify CP 2168 — see handy form pages 2-3



## Materials

fruit bowls, cigarette and candy boxes, lamp bases, etc. Excellent for light transmission purposes, but manufacturer doesn't recommend where transparency is requisite.

**FEATURES** — Newly developed process adapts clear sheets of this material to virtually any pattern. Sheets may be sawed, drilled, polished and otherwise machined by methods similar to those employed in working wood or soft metals. Readily formed by application of heat and pressure.

Combines strength, shatter-resistance, light weight and rugged endurance. Weather-resistant. Offers same beauty and clean design possibilities as original product.

**DESCRIPTION** — Produced commercially in seven different surface finishes. Other designs will be made available. Complements original material which is produced with smooth surface and which is best known for its transparency.

Sheets are produced at present in one size, 36 x 48", and in thicknesses of 0.100 and 0.250". Range of sizes and thicknesses will be increased with increased production.

E. I. du PONT de NEMOURS and COMPANY, INC., Dept. CP, Wilmington 98, Del.

When inquiring specify CP 2169 — see handy form pages 2-3

★

## Cuts Molding Cycles 10-20%, Pressures 20%, Report

*Polystyrene material lowers temperatures as much as 30%, manufacturer states*

**USES** — Polystyrene molding material for improved molding properties and reduced molding cycles.

**FEATURES** — Manufacturer reports marked improvement in weld lines, gloss and mold release with this material as compared to standard polystyrene.

Burning of material during molding is also said to be eliminated.

**DESCRIPTION** — Molding cycle reductions of 10 to 20% are reported, also pressures up to 20% less than those used for standard polystyrene. Molding temperatures can be cut as much as 30%, manufacturer states. Lustron PI is available in commercial quantities.

MONSANTO CHEMICAL COMPANY, Plastics Division, Dept. CP, Springfield, Mass.

When inquiring specify CP 2170 — see handy form pages 2-3

★

## Folding Wall Chart Lists Data on 29 Insulating Varnishes, Paints

Essential data on 29 insulating paints and varnishes are presented on a 21½"-square chart, suitable for shop wall or file drawer.

Chart lists uses, comparative baking and drying times, dielectric strengths and resistance to oil, moisture and chemicals, also recommended solvents and methods of applying them. Varnishes covered include baking and air drying, finishing and sticking; also oil-proof and machinery enamels, insulating paints.

IRVINGTON VARNISH & INSULATOR COMPANY, Dept. CP, Irvington 11, N. J.

When inquiring specify CP 2171 — see handy form pages 2-3

AUGUST, 1947



CHEMICAL SPECIALTIES

# TRIACETIN

DIBUTYL TARTRATE BUTYL STEARATE BUTYL OLEATE  
BUTYL "CELLOSOLVE"\* STEARATE METHYL "CELLOSOLVE" OLEATE

\*TRADEMARK OF C & CCC

# FATTY ACID ESTERS

STEARATES PALMITATES OLEATES RICINOLEATES LAURATES

for the

Textile, Cosmetic, Pharmaceutical, Petroleum, Plastic and Allied Industries

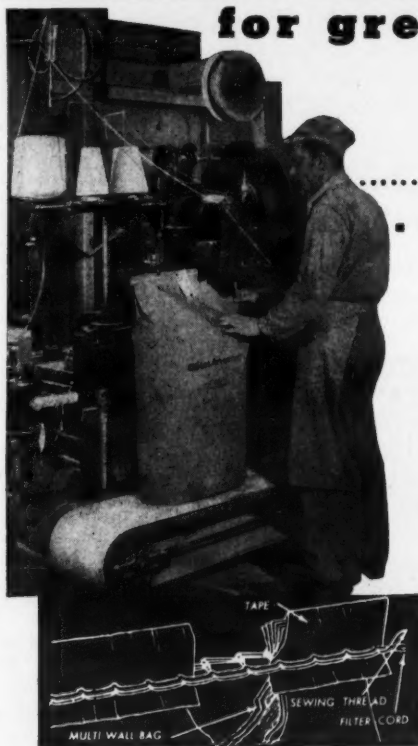
KESSLER CHEMICAL CO., INC.

ESTABLISHED 1921

STATE ROAD and COTTMAN AVE., PHILADELPHIA 35, PA.

When inquiring specify CP 2172 . . . see information request blank, pgs. 2-3

for greater security . . .



... the Union Special closure for

Paper Bags

Here is the equipment for closing large size multiwall paper bags: Union Special's Style 21800 H table type bag closing machine with Style 80600 H sewing head. This unit is specially designed to produce a tight, durable, economical closure at high speed for any plant using multiwall paper bags. As illustrated in the accompanying sketch and picture, the machine applies a paper tape binding, folds it over the top of the bag, automatically inserts a filter cord, and sews through the bag top in a smooth, continuous operation. For easy handling of bags, standard units are equipped with a five-foot, adjustable, power-driven conveyor. The sewing head is also adjustable for bags of varying heights.

For detailed description, ask for Bulletin No. 200.

Union Special

Machine Company

442 NORTH FRANKLIN STREET • CHICAGO, ILLINOIS

The small sketch shows the tape bound closure produced by Style 21800 H machine equipped with 80600 H sewing head.

When inquiring specify CP 2173 . . . see information request blank, pgs. 2-3

Page 25

# MERIAM SIGHT FEED BUBBLERS



SHOW  
WHAT  
YOU  
WANT  
TO SEE

THESE bubblers are widely used for purging lines and for the continuous operation of tank liquid level gauges . . . also in chemical processing to show presence of any undesirable or dangerous materials in gases.

They come in two designs: ring type (Model C-1241)—illustrated—and strap type (Model C-1439). Both of these types have brass or semisteel bodies and stainless steel needle valves for bubbler control. Bowls are furnished of Pyrex glass or plastic, depending upon pressure to be handled. Bubbler bowl is easily removed in both types.

These units are sturdy and dependable, moderate in cost and good for long, trouble-free service. They fill a real need and are giving top-notch satisfaction. Ask for Bulletin 21.

**THE MERIAM INSTRUMENT COMPANY**  
10940 Madison Avenue • Cleveland 2, Ohio  
Western Division: 1418 Wilson Ave., San Marino 9, Calif.  
In Canada: Peacock Bros., Ltd., Montreal

**MERIAM** ★  
★ *Instruments*  
ESTABLISHED 1911

MANUFACTURING DIVISIONS AND BRANCHES FOR THE ACCURATE MEASUREMENT OF PRESSURE, VOLUME AND FLOW OF LIQUIDS AND GASES

## Vapor-proof Construction Employed in Rotameter

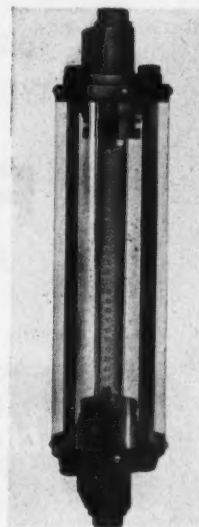
*Clear plastic tube encloses the entire frame and metering tube assembly*

**USES** — Instrument may be used for metering applications in the chemical processing industry where atmosphere is corrosive or toxic gases are being metered.

**FEATURES** — Protection afforded by this overall covering prevents damage to the pyrex tube, or packing glands and bolts. Also acts as a guard against leakage of fumes from toxic gases being metered.

**DESCRIPTION** — A clear plastic tube encloses the entire frame and metering tube assembly. When toxic gases are being metered, a vent in the end fitting may be provided for the installation of a small pipe to carry fumes outside the building.

Plastic tube also protects the glass tube against breakage and keeps dust, grease and dirt from the external surfaces of tube and packing glands.



Vapor-proof  
rotameter

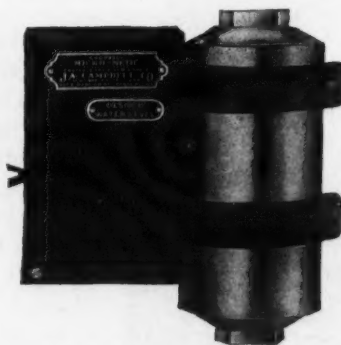
SCHUTTE & KOERTING COMPANY, Dept. CP, 12th and Thompson Sts., Philadelphia 22, Pa.

When inquiring specify CP 2175—see handy form pages 2-3

★

## Control Boiler Feed-Water Level with Electromagnets

*Monel float with steel ring resists 400 psi.; compact, 7-1/2-lb. unit fastens to boiler*



Electric boiler level controller

**USES** — Electric controller for boiler feed-water level. For general small boiler use.

**FEATURES** — Fast-acting, embodying positive, powerful magnetic action.

**DESCRIPTION** — Unit includes a round ball float of monel, capable of resisting pressure of 400 psi. Float

carries a steel ring which attracts magnets as it comes into their fields. Magnets are Alnico permanent, capable of lifting 100 times their weight.

Micro-switch is used. When boiler water level lowers to predetermined point, magnetic action opens water line

## Instruments

and, when level rises to certain point, feed line closes automatically.

Product weighs 7-1/2 lbs., can be attached to boiler to occupy space 3-1/2 x 7-1/2" for housing. Switch box measures 2 x 4 x 6-1/2". Descriptive literature forwarded on request.

J. A. CAMPBELL COMPANY, Dept. CP, 645 E. Wardlow Rd., Long Beach 7, Calif.

When inquiring specify CP 2176—see handy form pages 2-3

★

## Audible and Visual Signals Provided by Timer

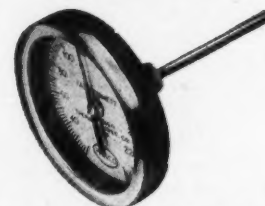
*Operates on 115 or 230 volts A.C., 25, 50 or 60 cycles*

**USES** — Timer is designed to provide visual and audible attention when a time interval is completed. Used on applications that require automatic closing or opening of a circuit at the end of elapsed time, and operates additional buzzers, bells or lights at remote locations.

**FEATURES** — Rapid resetting of the pointer knob, when the same time interval is to be repeated indefinitely, is afforded by a quickly adjustable back stop.

**DESCRIPTION** — When the pointer on the timer is manually set to the required interval shown on the dial, a circuit is closed which operates a pilot light indicating that the time interval has started. The moving pointer

## ANNOUNCING!



## PRINCO "EASY-SETTING" DIAL THERMOMETERS

- 5 Standard Ranges — Fahrenheit or Centigrade
- "Easy-Access" Cases for Quick Setting
- Simplified Dial and Pointer Adjustment
- Rugged, Accurate, Bimetallic Unit

"Easy-Access" cases permit all adjustments to be made from the front, "on the job"!

Two case types: "Quick-Opening," with threaded frame; "Moisture-Proof," with bolted frame.

4" dial, 5 standard ranges, Fahrenheit or equivalent Centigrade, covering -100° to +850° F., or -75° to +450° C.

Stainless Steel stem in 4 standard lengths: 4", 6", 9" and 12". Separable sockets available. Write for illustrated folder.

**PRECISION THERMOMETER & INSTRUMENT CO.**

INSTRUMENTS **PRINCO** FOR INDUSTRY

1404 Brandywine Street, Philadelphia 30, Pa.  
In Canada: PEACOCK BROTHERS Limited

When inquiring specify CP 2177—see handy form pages 2-3

CHEMICAL PROCESSING Preview

When inquiring specify CP 2174—see handy form pages 2-3



revolves counter-clockwise toward zero; at any second, during the interval, the exact time elapsed is shown on the dial. On completion of the interval, an audible alarm sounds and the pilot light goes out.

Buzzer continues to sound until the toggle switch on the timer is snapped to off position or the timing interval is again started, by moving the pointer knob to the required interval.

Two sockets, red and black, are provided on the side of the case for both normally open or normally closed cir-



Series S signalling timer

cuit control. Sockets on side of timer case provides for connection of additional lights or alarms.

Timer is enclosed in a metallic grey case, easily attachable to any wall or panel or standard switch box. Operates on alternating current, 115 or 230 volts; 25, 50 or 60 cycles. Motor is slow speed, self-starting synchronous type. Pure silver contacts are used throughout. Case size 5 x 5 x 3 1/2 inches deep.

Timer is available in six models, with dial calibrations of 1 and 15 seconds or 1 and 15 minutes. Maximum intervals of 1, 5, 15 and 30 minutes or 1 and 3 hours are provided.

INDUSTRIAL TIMER CORP., Dept. CP, 110 Edison Place, Newark 5, N. J.

When inquiring specify CP 2178 — see handy form pages 2-3

★

### Wearing Quality of Coatings, Plastics, Rubber, Textiles, Shown by Abrasion-Testing Aids

Complete line of abrasion-testing aids for the Abraser, a standard instrument for determining wearability of electroplated coatings, paints, lacquers, enamels, plastics, textiles, rubber, leather, paper and paperboard, is illustrated and described in a 12-page bulletin.

Used in connection with product development, quality improvement and production uniformity control, equipment reviewed includes four new devices: a vacuum pick-up unit for continuously removing abrading from wear-track on specimens; an interval timer to control test operating time; a duplex refacing stone for standardizing abrading wheels, and a double-coated adhesive sheet which expedites preparation of textiles for wear-testing.

Several other accessories are shown. Bulletin 4702.

TABER INSTRUMENT CORPORATION, Dept. CP, 111-CP Goundry St., No. Tonawanda, N. Y.

When inquiring specify CP 2179 — see handy form pages 2-3

AUGUST, 1947

## Masoneilan 12000 Series... Gives You Level Control and Independent Pneumatic Transmission of Level to Remote Indicator or Recorder



Resistance Unit—Scale is calibrated over a 10-inch length. Simplified assembly and precision machining for reproducible settings. Stainless steel plug and orifice.

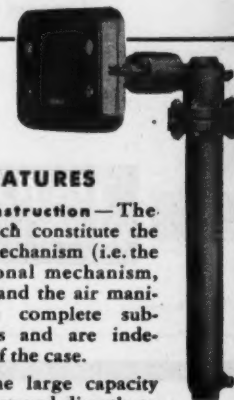
Proportional Band Scale—calibrated from 2 to 100% over 4-inch length. Linear proportional characteristics to close limits in all settings.

Specific Gravity Scale—calibrated from 0.5 to 1.2 or from 0.8 to 2.0 specific gravity.

Setting Index Scale—provides control point setting through full level range. Vernier knob for smooth and positive adjustment.

**Controller Mechanism**—available with either proportional (12600-20) or proportional-reset (12610-20) action.

**Transmitter Mechanism**—completely independent from the controller mechanism. During transitory conditions, the record of the level is valuable in analyzing process changes and predicting trends.



### FEATURES

**Unit Construction**—The parts which constitute the control mechanism (i.e. the proportional mechanism, the pilot and the air manifold) are complete sub-assemblies and are independent of the case.

**Pilot**—The large capacity pilot is fastened directly to the air manifold by means of two screws, eliminating all major air tubing connections and facilitating removal. Simplified construction permits disassembly in the field for cleaning.

**Air Passages**—All air passages are bronze or copper, preventing the formation of scale or rust beyond the air filter in the supply line.

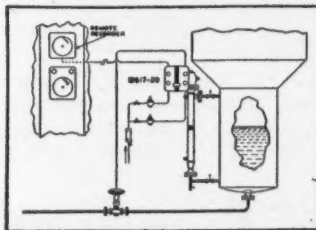
**Knife-Edge and Flexure Bearings**—Lost motion and friction are reduced to such a point by the use of knife-edge and flexure bearings that the response to minute changes in level is practically instantaneous.

**Torque Tube Sub-Assembly**—All parts of the torque tube sub-assembly are of inconel and are fused together by the atomic-hydrogen arc welding process. Monel and stainless steel assemblies also available.

**Level Ranges**—Standard Ranges are 14 and 32 inches, 4, 5, 6, 7, 8, 10 and 15 feet.

**Vessel Connections**—Screwed and flanged connections are designed to meet service requirements and facilitate vessel mounting.

A Model 12617-20 (below) side and bottom connected proportional-reset controller-transmitter controls the valve in the draw-off line from the bottom of the column. The level measurement is transmitted by an independent pneumatic transmitter to a recorder located at the central panel board. The proportional-reset controller maintains a constant level under varying load conditions.



Masoneilan 12000 Series controller-transmitters are recommended for such other critical applications as:  
Reflux Accumulators  
Ammonia or Propane Chillers  
Treating Tower Interface of Raffinate and Extract  
Fractionating Column Reboilers  
Deaerating Feed Water Heaters

## MASON-NEILAN REGULATOR CO.

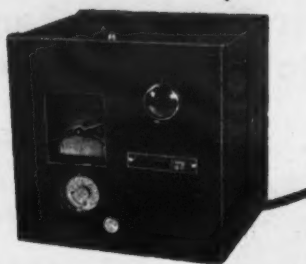
1203 Adams Street, Boston 24, Mass., U. S. A.

New York Chicago St. Louis Philadelphia Houston Buffalo  
Pittsburgh Tulsa Los Angeles Cleveland Atlanta San Francisco  
Mason Regulator Co. of Canada, Ltd., Montreal and Toronto

When inquiring specify CP 2180 . . . see information request blank, pgs. 2-3

## PALO TIME SWITCH Sr.

Model  
2475



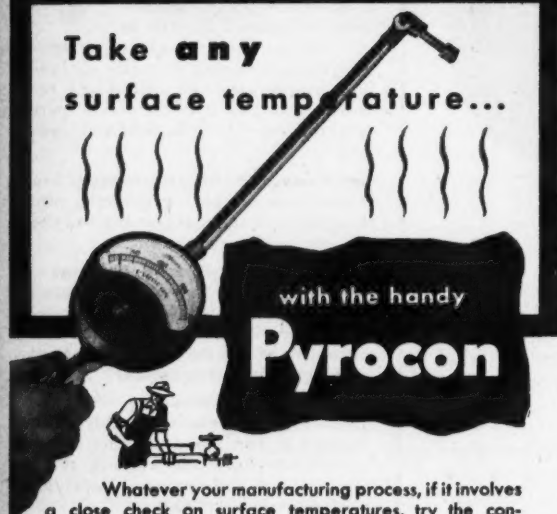
The PALO TIME SWITCH Sr. is a completely self-contained unit incorporating the necessary equipment to turn on or off any type of electrical laboratory apparatus on a predetermined time schedule.  
110 Volts, AC only  
20 AMPS non-inductive or 1 HP motor load

PRICE \$37.50

**PAIO-MYERS INC.**  
81 READE STREET NEW YORK 7, N. Y.

When inquiring specify CP 2181 — see handy form pages 2-3

Take any  
surface temperature...



with the handy  
**Pyrocon**

Whatever your manufacturing process, if it involves a close check on surface temperatures, try the convenient, hand-held Alnor Pyrocon! For instance, plastic molding, die-casting, rubber and paper products processing—all can be speeded up, higher qualities can be attained, through the easy use of this compact portable pyrometer. Readings are quick; accuracy is of laboratory quality. Pyrocons cost little—are immediately available. Write for Bulletin 4257 and prices. Illinois Testing Laboratories, Inc., Room 504, 420 N. La Salle Street, Chicago 10, Illinois.

**Alnor**

PRECISION INSTRUMENTS  
FOR THE INDUSTRY

When inquiring specify CP 2182 — see handy form pages 2-3

Page 28

## Instruments

### Ultra-Violet Monochromators for Spectral, Visual Regions, Described in Bulletin

Six types of ultra-violet monochromators are described, with illustrations and tabulated specifications, in a 12-page technical bulletin.

Instruments described include three models for the spectral region 200 to 800 mu with quartz-lithium fluoride optics; and three models for the visual region 400 to 950 mu, with glass optics. Literature discusses optical system, dispersion, scattered radiation; general specifications of prisms, objectives, slit; mechanical features, scales and calibration. Includes charts and diagrams. Bulletin 801.

FARRAND OPTICAL COMPANY, INC., Dept. CP, Bronx Blvd. & E. 238th St., New York 66, N. Y.

When inquiring specify CP 2183 — see handy form pages 2-3

★

### Electro-Analyzer Practical for Production or Research

Unit with 400-watt max. power requirement determines nickel, lead, zinc, chromium



Electro-analysis apparatus

**USES** — Redesigned electro-analysis apparatus for constant use in industrial or production testing laboratories, yet flexible enough to be fully adaptable for research work.

For determinations of nickel, copper, lead, antimony, cadmium, zinc, chromium, other metals, by electro-deposition.

**FEATURES** — Uses all electrodes, including rotating type. Several units may be "banked" side by side for bench or wall mounting.

**DESCRIPTION** — When using rotating anode set-up, no changes in electrical circuit are required, since brush contact furnishes power to electrode holder.

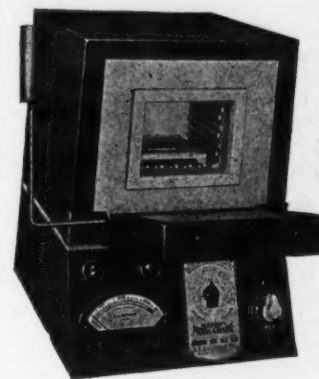
Built-in selenium dry type full wave rectifier delivers 8 volts, 5 amps DC at both spindles for simultaneous determinations, or 10 amps DC for single determination. Apparatus operates from line current without auxiliary electrical equipment.

Ammeter and voltmeter for each spindle are standard equipment. Voltmeter automatically indicates direction of current flow, which is controlled by polarity reversing switches. Stirrers rotate at constant speed of 550 rpm by V-belt drive. Stirrers, mounted on sealed ball bearings, are of "hollow spindle" type, adjustable for height.

Rubber cushioned beaker supports may be raised or lowered for various size beakers. Spring type stainless steel

None other like it!  
NEW • ACCURATE • AUTOMATIC

### HUPPERT MODEL 4 DELUXE LABORATORY FURNACE



That's true — you cannot find another make laboratory and small unit production furnace with a proximity to the new Huppert Automatic, Precision Control. Any temperature from 100° to 1800° F., may be set and automatically maintained. Operate 115 A.C. Current consumption 1500 watts, I.D. 4 1/8" x 3 1/4" x 6" O.D. 14" x 16" x 16". All-steel construction and multi-insulation.

Complete with pyrometer and automatic control.

\$100.00

Also available as the standard Model 4.

Ask for literature on complete line of furnaces including floor Models.

**K. H. HUPPERT CO.**

6822 Cottage Grove Ave.

Chicago 37, Ill.

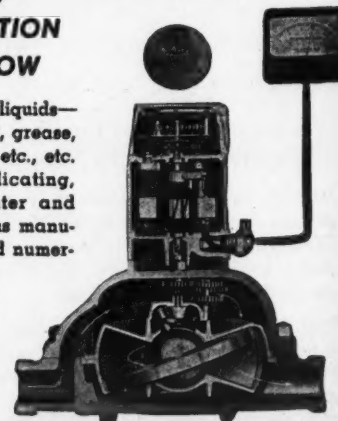
When inquiring specify CP 2184 — see handy form pages 2-3

### NEW HAYS VERIFLOW TOTALIZING-INDICATING METER

Featuring  
REMOTE INDICATION  
OF RATE OF FLOW

For practically all liquids—tar, molasses, crude oil, grease, paint, varnish, syrups, etc., etc.—for measuring, indicating, totalizing flow of water and chemicals in continuous manufacturing processes and numerous other uses. Its remote indicating feature is new—get the complete story.

SEND FOR  
BULLETIN 46-766



**The HAYS CORPORATION**  
MICHIGAN CITY, INDIANA, U.S.A.

When inquiring specify CP 2185 — see handy form pages 2-3

CHEMICAL PROCESSING Preview



## Instruments

holders grip electrode stem firmly by depressing end of holder, inserting electrode stem in jaw, and releasing. Front surfaces are heavy gauge stainless steel. Sides are cast aluminum black wrinkle coated. Meters and mechanism contained within unit for protection from acid fumes. Auxiliary heaters are available.

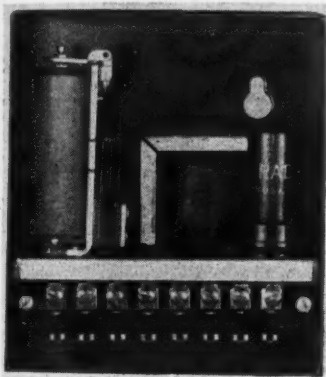
A 32-560 unit may be used on 110 or 220 volts, 60 cycle, single phase, AC. Power requirement 400 watts maximum. Overall height, 29-1/2". Table space, 14-1/2" wide, 16-1/2" deep.

EBERBACH & SON COMPANY, Dept. CP, Ann Arbor, Mich.

When inquiring specify CP 2186—see handy form pages 2-3

## Electronic Switch Useful With Floatless Liquid Level Controls

*Permits switching heavy loads with delicate contacts. Basic models handle 3, 10 and 30 ampere non-inductive loads at 110 V. AC*



Electronic switch for pressureless switching and floatless control of liquid levels

the switch in such a manner that the conductivity of the liquid will cause switch actuation when the desired solution is obtained. Also useful in motion-limiting and gaging applications where neither contact pressure nor travel, beyond that serving to introduce the required resistance in the circuit, is required.

**FEATURES** — The use of this switch prevents arcing, welding, or pitting of the electrodes. Electronic circuit assures quick positive action. Telephone relay employed is of rugged construction. No adjustments necessary. Compact construction permits easy mounting in confined spaces.

**DESCRIPTION** — Switch is actuated when the input connections are either shorted or an electrical resistance of 0 to 1 megohm is inserted in the circuit. The extremely small current that flows is amplified and energizes the relay.

Basic models available will handle 3, 10 and 30 amperes, non-inductive loads at 110 V. AC.

Reverse action of the switch is available which permits actuation when the input resistance becomes more than a given value, rather than less.

THE RIPLEY COMPANY, INC., Dept. CP, Deep River, Conn.

When inquiring specify CP 2187—see handy form pages 2-3

AUGUST, 1947

**USES** — This electronic switch may be used with floatless liquid level controls, to relay heavy electrical loads from delicate contacting devices, such as mercury columns and distillation work. Switch is suitable for applications where inflammable or explosive liquids are encountered.

Chemical mixtures can be controlled by locating electrodes connected to

# OCECO V-114 Internal Tank Valves

## close automatically when exposed to fire

● Oceco V-114 Internal Tank Valves have been designed specially for use when fire regulations require that tanks holding combustible liquids be equipped with valves that will close automatically when subjected to exposure fires.

The valve is held open with a lever and a fusible link which melts at 165°F, releasing the lever, and permitting the spring to seat the valve tightly—shutting off the liquid flow. A boss on the side of the valve body can be drilled and tapped for a by-pass connection, to permit easy operation of the lever when tank pressures are excessive.

Oceco V-114 Valves are available in 3", 4", 6" and 8" sizes. The 3" size with screw thread can be mounted within a tank flange. The 3", 4", 6" and 8" flanged valves—see diagram above—can be mounted respectively inside 4", 6", 8" or 10" standard A.P.I. tank nozzles or nozzles constructed of extra heavy pipe. All sizes of the valves extend at least 1" inside the tank shell, and consequently are free flowing under all conditions.

Complete specifications including price and size data sent promptly on request. Write for full details today.

# OCECO

Division of THE JOHNSTON & JENNINGS CO.

CLEVELAND 14, OHIO

NEW YORK • PITTSBURGH • DETROIT • CHICAGO • ST. LOUIS • TULSA • BEAUMONT  
MOBILE • CASPER • SAN FRANCISCO • LOS ANGELES • TORONTO AND MONTREAL

When inquiring specify CP 2188 . . . see information request blank, pgs. 2-3

EASY REMEDY FOR DAMAGE  
FROM DIRT IN PIPING SYSTEMS

## CRANE SEDIMENT SEPARATORS



Cross-section  
Standard Type



Cross-section  
Y-Pattern

In any pipe line, the cutting action of scale and dirt is damaging to valve seats. In lines to automatic machines, such foreign matter may be causing frequent shutdowns or high product spoilage.

**AUTOMATIC . . . EASY TO SERVICE**—Crane Sediment Separators automatically trap and remove foreign matter in pipe lines. Only periodic emptying of sediment pocket is required. Large screening areas assure free fluid flow and minimum pressure loss. Crane design permits easy clean-out and replacement of screen.

**FOR HIGH OR LOW WORKING PRESSURES**—A wide range of sizes in several types in iron and steel, with screwed or flanged ends, assures a Crane separator for most needs. All types supplied with screen of mesh and material best suited for service specified. See your Crane Catalog or

**WRITE FOR FREE FOLDER AD-1638**

CRANE CO., 836 S. Michigan Avenue, Chicago 5, Ill.  
Branches and Wholesalers Serving All Industrial Areas

# CRANE

Everything for  
Every Piping  
System

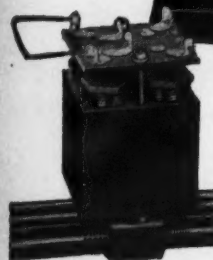
VALVES • FITTINGS • PIPE • PLUMBING AND HEATING

When inquiring specify CP 2189—see handy form pages 2-3

## Low cost gas analysis!

ACCURATE...  
SENSITIVE...  
COMPACT...  
RUGGED...

with **GOW-MAC**  
EVER-TITE  
**THERMAL  
CONDUCTIVITY  
UNITS**



**THOUSANDS OF  
GOW-MAC UNITS**  
are performing various gas analysis functions in laboratories, petroleum refineries, aircraft carriers, chemical plants and process industries. Write for bulletin A47

GOW-MAC units provide a rapid, accurate and very inexpensive means of observing gases by the well-known thermal conductivity method. They require no special instruments, only standard accessories found in any laboratory or instrument department.

Typical applications include special atmospheres, gas synthesis, inert gas generation and distribution, efficiency of internal combustion engines and furnaces and wherever hydrogen and CO<sub>2</sub> are found. Units may be used with indicating, recording and controlling instruments. Extremely adaptable to gas flow needs.

Special features of construction result in high sensitivity, excellent stability and long life relatively unaffected by vibration or ambient change. All cells are tested at 10 psi before shipment. Parts are precision machined and assembled without the use of glass or cement.

**GOW-MAC INSTRUMENT CO.**  
22 LAWRENCE ST., NEWARK 5, NEW JERSEY

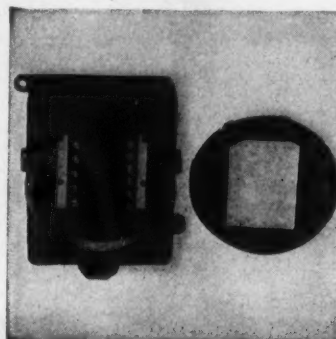
When inquiring specify CP 2190—see handy form pages 2-3

Page 30

## Instruments

### Index Level Control Has no Floats or Moving Parts

*Accuracy is independent of temperature and pressure. No vacuum tubes are used*



Level control type 10CBIX

**DESCRIPTION**—Device is an alternating current control that combines a probe circuit and transformer to operate a direct current relay. Two probe rods wired to the low point where pumping is to start, and the high point at which pumping stops.

When the liquid rises to the level of the upper probe, the fluid acts as conductor of the minute current at low voltage

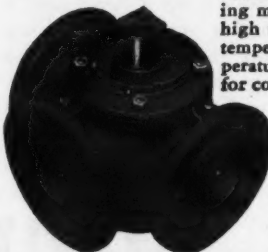
**USES**—Unit is designed for applications of liquid level control in the chemical processing field.

**FEATURES**—No floats or other moving parts are required in the tank to actuate the control. No vacuum tubes are used. Accuracy is independent of temperature and pressure. Unit is easy to install and maintain.

## Jacketed Pipe and Fittings



Jacketed 90° Elbow



Jacketed 3-way Plug Cock.  
Note threaded plug adjustment, with lock nut.

FOR MAINTAINING  
UNIFORM TEMPERATURE (HOT  
OR COLD) IN PROCESS PIPES

Wherever processing operations require the maintenance of uniform temperature (hot or cold) in the process pipes, a Hetherington & Berner Jacketed Pipe System will meet every requirement of accurate, economical processing. Heating medium may be either hot oil for high temperatures, steam for medium temperatures, or hot water for low temperatures. Cold water for cooling.

At right: Jump-over pipes prevent heating (or cooling) medium from entering process pipe in transferring it from jacketed line to fittings, or from fitting to fitting.



Write for Bulletin S-44



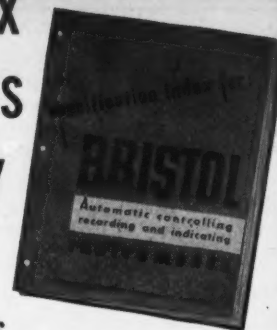
**HETHERINGTON & BERNER INC.**

711 KENTUCKY AVE., • INDIANAPOLIS 7, INDIANA

When inquiring specify CP 2191—see handy form pages 2-3

## YOUR INDEX TO PROCESS EFFICIENCY

*with our  
compliments*



This is our new, general catalog W1800, "Specification Index for Bristol Automatic Controlling, Recording and Indicating Instruments." It contains 24 pages of condensed information telling how Bristol instruments promote efficiency in industrial processes. Illustrations show basic methods of applying various types of instruments. If you use, or contemplate using instruments, we'll gladly send you a copy without obligation.

### THE BRISTOL COMPANY

141 Bristol Road, Waterbury 91, Connecticut

When inquiring specify CP 2192—see handy form pages 2-3



## Fittings are Scarce save 7 per trap with SUPER-SILVERTOPS

One way to conserve those "more-precious-than-gold" pipe fittings—make them go farther—is by simplifying with Super-Silvertop Steam Traps.

As you can see in the photos at the right, a Super-Silvertop uses many less fittings than are needed on an ordinary inverted bucket trap. Super-Silvertop gives you this saving because of the built-in U-tube—not in just a few sizes, but in all sizes of traps, and without the weakness of cored passages or split (pierced) gaskets.

Do you want to save fittings and still get efficient trapping? Then investigate Super-Silvertop. Complete details are included in the helpful book "How To Choose a Steam Trap"—send for your free copy.

**THE V. D. ANDERSON CO.**  
1954 West 96th Street • Cleveland 2, Ohio



Super-Silvertop showing one nipple and one union needed.



Conventional trap using seven fittings and two unions.

When inquiring specify CP 2193—see handy form pages 2-3

CHEMICAL PROCESSING Preview



required for the operation of the relay. Opening of the electrical circuit results, and pumping stops.

It is supplied in an explosion-proof housing, or a pressed steel dust-tight enclosure. Explosion-proof housing is used on installations where it is desirable that the level control which carries the current required to operate the pump be explosion-proof, even though it is permissible to pass a minute electrical current at low voltage through the liquid itself.

Control operates on 115 or 230 volts, 25/60 cycles A.C. Output is 2 amperes at 115 volts; 1 ampere at 220 volts. A selection of four terminals on the terminal panel enables the probe circuit to be matched to the electrical conductivity of the liquid to be controlled.

PHOTOSWITCH INCORPORATED, Dept. CP, 77 Broadway, Cambridge 42, Mass.

When inquiring specify CP 2194 — see handy form pages 2-3

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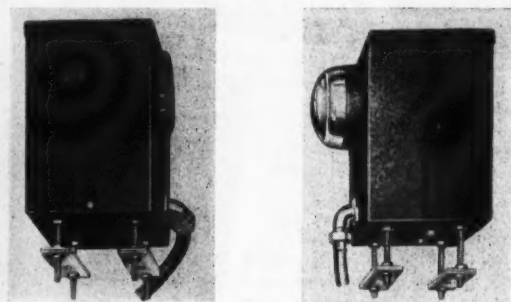
## Presence of Smoke and Dirt Indicated by Light Meter

*Condition of gases indicated on meter . . . sounds alarm when a predetermined amount of smoke exists*

**USES** — Instrument is used to indicate the presence of smoke on stack units serving fuel fired equipment where the fuel may be oil, pulverized coal, etc. Also adaptable for use in air-conditioning dusts, rooms, etc., where warning or switching is desired when small amounts of smoke or dirt are present.

**FEATURES** — Provides a sensitive means of detecting incorrect combustion conditions.

**DESCRIPTION** — This photo electric indicator is a unit for measuring light. For smoke measurement the



Smoke indicator may be flush or wall mounted

stack units are mounted across the smoke passage and show how much light is cut off by the smoke.

Meter is marked zero in the center with 100 points on either side. By adjusting the sensitivity of the instrument and the lamp rheostat, this center point, zero, can be made to represent the most economical haze and variations of either too dark or too light haze, corrected by observing the meter.

Since the best combustion haze is usually around number one Ringelmann scale, numbers four and five are suppressed in order to secure close readings in the region of economical fuel-air ratio.

ESS INSTRUMENT COMPANY, Division of Ess Specialty Corp., Dept. CP, 96 S. Washington Ave., Bergenfield, N. J.

When inquiring specify CP 2195 — see handy form pages 2-3

AUGUST, 1947

# VOLUME IS WASTE

## Without Accurate Control

**L**IGHTNING typifies volume of electricity, but it is useless to man because he can't CONTROL it. In like manner mere volume in heat treating or chemical industries signifies little unless accurate temperature or pH control is constantly maintained.

Potentiometers are supreme for this purpose and the heart of these instruments, for a quarter century, has been in most cases the Eplab Standard Cell. It is a "yardstick" for translating voltage to temperature or pH. The first commercial cell of its type made in America, it has been constantly improved by research. Practically our entire production is devoted to this one product.

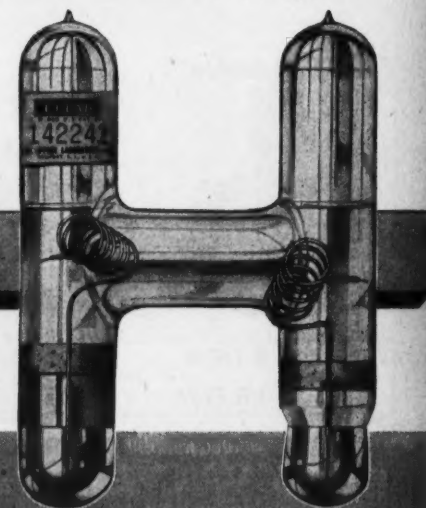
*Specify*

EPLAB STANDARD CELLS WHEN YOU ORDER POTENTIOMETRIC INSTRUMENTS

**THE EPPLEY LABORATORY, INC.  
SCIENTIFIC INSTRUMENTS  
NEWPORT, RHODE ISLAND, U. S. A.**

**EPLAB Standard CELLS**

For Potentiometric Instruments . . . "As Standard as Sterling"



When inquiring specify CP 2196 . . . see information request blank, pgs. 2-3

# REED *Jacketed* CAST IRON OR STEEL VALVES

## JACKETED CAST IRON

Reed Jacketed Cast Iron Valves have jackets cast integral with the body and are furnished with flanged ends only.

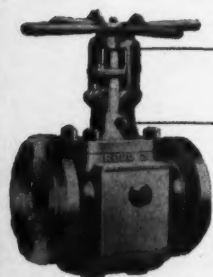
Flanges are the next nominal size larger than the valve size, that is: 1" valves have 2" end flanges, etc. All valves are F & D to A. S. A. standard dimensions.

Available only in sizes 1", 2", 3", 4" and 6", line working pressure 125 p.s.i. at 450° F. maximum.

## JACKETED STEEL

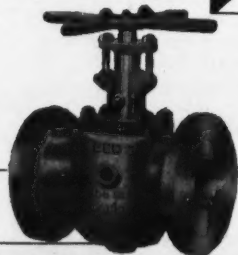
Reed Jacketed Steel Valves have fabricated jackets and can be furnished in Standard Series 150 and Standard Series 300. Flanged valves can be furnished in sizes 1½", 2", 3", 4" and 6", F & D to A. S. A. standard dimensions. Screwed valves in sizes 1½", 2" and 3" only.

Deep stuffing boxes assure effective sealing, and wear on the packing is minimized, as the stem makes only a quarter-turn when the valve is operated.



**JACKETED  
STEEL**

**JACKETED  
CAST IRON**



**REED VALVE DIVISION**  
of the REED ROLLER BIT COMPANY  
P. O. BOX 2119 HOUSTON, TEXAS

When inquiring specify CP 2197—see handy form pages 2-3

## Instruments

### Speed of Travel Measured by Linear Speed Meter

Accuracy 1%. Available in ranges from 3 to 3,000 yards per minute or 10 to 10,000 fpm



Linear speed meter reads direct in feet or yards per minute

DESIGNED FOR rugged use. Accuracy 1% over sustained periods. All meters are direct reading.

DESCRIPTION — Contact to the moving member is made with a replaceable free running disc 1 foot in circumference (3⅞" in diameter) which is solidly clamped on the rotating shaft of the head. Contact surface of the disc is oil resistant synthetic rubber which

USES — Instrument is used in applications where measurement of speed of travel is desired. Especially useful in the paper, steel and textile industries for checking the speed of the product through processing mills and presses.

FEATURES — Designed for

## PRODUCT OF 30 YEARS

*Experience*  
"PRECISION" Thelco OVENS  
and INCUBATORS



### "Precision" Thelco Model No. 16

Representing continuous engineering improvements extending over thirty years, this "Precision" Thelco all metal laboratory oven offers a new measure of dependable performance, accurate, sensitive temperature control, sensible ease in handling and unusually sturdy construction. It can be said without fear of contradiction, "No other oven at or near its price level offers so much for so little." Write for detailed constant temperature catalog 325K.

### "Precision" Thelco Incubator Model No. 2

Automatic Control at 37°C or any other point from 5° above room temperature to 60° C

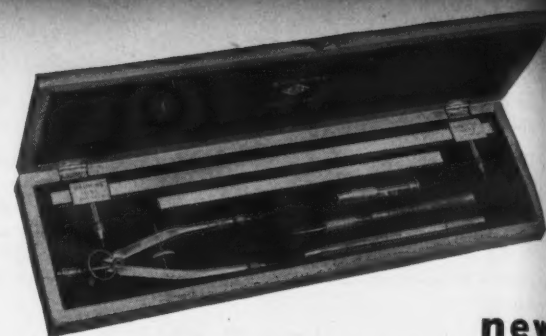
Built on the same general lines as the Thelco Model 16, the "Precision" Thelco incubator incorporates the same engineering refinements and rugged construction. Particularly useful in agricultural experiment station labs, dairy industry, food processing plants, water and sewage treatment labs, and producers of biologicals and pharmaceuticals. Write for detailed literature 325K.

See Your Laboratory Supply Dealer

**Precision Scientific Company**

1127 WEST FORTLAND STREET CHICAGO 41, ILL. U.S.A.  
Precision Research and Production Control Equipment

When inquiring specify CP 2198—see handy form pages 2-3



## new industrial drafting set provides exclusive features!

Exclusive patented features that help make the draftsman's work easier—more accurate—are contained in this new Bruning Industrial Drafting Set. Set contains 4 most essential drafting instruments. New type ruling pen featuring a patented calibrated adjusting collar which regulates the opening nibs—making it easy to re-set nibs to maintain lines of uniform width. The Compass has rapid, simple and positive adjustment which cannot slip or go loose—permits drawing of circles either in pencil or ink up to 24 inches diameter. Six-Inch Giant Bow Compass for drawing circles from 1/16 to 10 inches in diameter—has patented lead propelling device which advances without soiling fingers and tracings. Draftsman's refillable pencil can be converted to double point by removing screw cap and replacing it with a tip and chuck, furnished. Pencil takes leads from .073 to .081 or degrees to 9H in standard drafting leads. Plastic tube containing extra leads, needles, pen part and pencil tip and chuck completes the set. Entire set is finished in natural finish mahogany case. Instruments are of high quality finish aluminum and chrome-plated steel. Write Charles Bruning Company, Inc., 4706-14 Montrose Ave., Chicago 41, Ill.

LIST PRICE

**\$20.60 BRUNING**

Since 1897

When inquiring specify CP 2199—see handy form pages 2-3

## "PRECISION" NON-Frothing CRUDE FIBRE DIGESTION RACKS

### For Laboratory Control of Raw Materials and Finished Products

Crude fibre determinations, according to "Methods of Analysis of the Association of Official Agricultural Chemists," are run on bread, baked products other than bread, grain and stock feeds, macaroni products, milk chocolate, nuts and nut products, plants, prepared mustard, roasted coffee, spices, tea and wheat flour.

In addition to meeting the basic requirements of the above methods, this apparatus incorporates a number of unusual features which contribute materially to ease of handling and assist in procuring accurate results. One of the most serious difficulties in running crude fibre determinations is frothing of the solution in the beaker. This results in loss of sample, which distorts quantitative calculations. The non-frothing performance of the "Precision" digesting system is vitally important to accurate work. Write for literature No. 6-32-33-D.

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Precision Research and Production Control Equipment

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CHEMICAL PROCESSING Preview

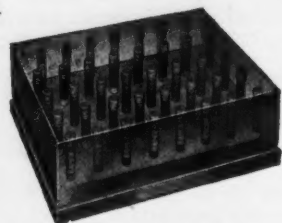


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## SCIENTIFIC ODOR-CONTROL

with CROCKER-HENDERSON  
ODOR STANDARDS

Numerical classification of odors assures constant and accurate check of fundamental "Scent Tones" in the fields of Foods, Beverages, Pharmaceuticals, Cosmetics, Synthetic Resins, Textiles, Paints, Petroleum, Naval Stores and other products requiring odor supervision or elimination.



Set consists of 31 Odor Standards, in wood block, protected by transparent plastic cover. Additional empty test vials included.

A numerical specification for any odor. Complete set with instructions — \$35.00. Bulletin upon request.

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## The WINNAH! —and still champion



Water in compressed air lines is tough on air tools, sprayed finishes, sand-blast equipment... and it's tough to eliminate—but not with Aridifier, the "waterweight" champion. Those counter-rotating rotors deliver the knockout punch—spin air clean and dry by centrifugal force. Dirt, water, oil and scale are impinged on rotors and hurled free of air stream to flow to drain. No baffles or filters to cause back pressure... stays clean. Join the thousands of "Riddy" boosters—write for bulletin and details of free trial offer.

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**Logan ARIDIFIER**  
Dries and Cleans Compressed Air

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AUGUST, 1947

## Instruments

has a high coefficient of friction and good wear properties. Permanent lubrication is provided.

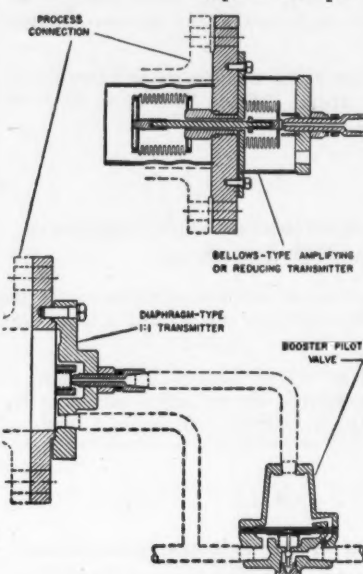
Available in a wide selection of ranges from 3 to 3,000 yards per minute or 10 to 10,000 feet per minute. All meters are calibrated in either feet or yards per minute.

METRON INSTRUMENT COMPANY, Dept. CP, 432 Lincoln St., Denver 9, Col.

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## Liquid Levels and Pressures Measured by Transmitter

Measures pressures in the range of 1 psi  
up to 200 psi



Schematic arrangement of bellows and diaphragm type pneumatic transmitters

The bellows-type instrument is designed to measure process pressures in ranges as small as 1 psi or as large as 200 psi and to transmit a range of air pressures which suit standard pneumatic receivers. Diaphragm-type instruments measure process pressures up to 60 psi and transmit air pressures in 1:1 ratio. All transmitters operate on the pneumatic "null" balance principle and use a booster pilot valve as in the schematic diagram. The operation of the booster pilot maintains a constant differential pressure across the pilot nozzle in the transmitter, to balance the bellows or diaphragm at essentially a "null" position for all values of the process pressure. This pneumatic force-balance operation results in high-speed, linear transmission.

Diaphragms are furnished in neoprene, stainless steel, and other corrosion-resistant materials.

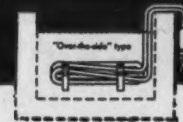
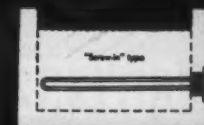
Bellows which are in contact with the process fluid are in stainless steel, monel, brass, and phosphor-bronze, and are replaceable.

All units can be furnished for mounting on standard flanges or provided with a pressure chamber.

MOORE PRODUCTS CO., Dept. CP, H & Lycoming Sts., Philadelphia 24, Pa.

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## Design for "Built in" LIQUID HEATING



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## IMMERSION HEATERS

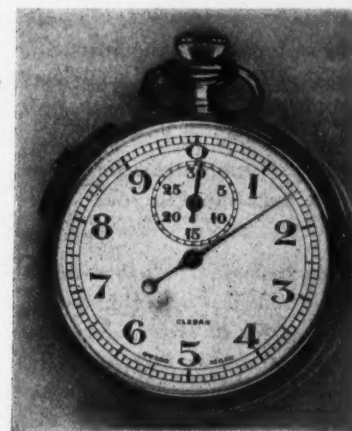
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## Accurate, Dependable STOP WATCHES



Wherever unflinching accuracy in timing is required, you can rely on Clebar precision timers. They have proved their dependability in many leading laboratories and industrial plants.

### No. 601 CLEBAR Decimal Timer

1/100 dial, side slide for time-out, large hand makes one revolution in one minute, 30 minute register, 7 jewel non-magnetic movement, nickel chrome case.

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## PLASTIC COVERED TUBING

*for the  
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Industry*

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Steel  
Tube

Protection of pipes leading to delicate instruments is a serious problem faced by the chemical industry. These pipes of steel or brass are subject to corrosion from fumes and acids unavoidably present in many chemical operations. Such corrosion if unchecked may cause serious damage to expensive delicate instruments.

To meet this problem Carter has developed a special method\* of covering metal pipes with a protective coating of Vinyl, proof against acid, fumes or any corrosion agent. It is tough, will not chip or peel, flexible, readily bending to conform to any position of the pipe. This covering of Vinyl or any other thermoplastic, can be applied to your pipe according to your specifications in any quantity, size or color desired.

Carter plastic tubing extruded to order in all shapes, sizes and color, flexible or rigid, opaque or transparent is noted for its close tolerances. On your tubing problems or any extruded plastics problem *it's smarter to consult Carter.*

\*Patent applied for



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## Briefs . . . from contemporary publications

Here's a quick look at interesting articles appearing in other publications

. . . as selected by Technical Editor, H. McCormack

### Continuous Commercial Production of Allyl Chloride and Allyl Alcohol From Propylene

The high temperature chlorination of propylene to allyl chloride is described, employing a continuous commercial process, in a ten page article. Also described is a process for the production of allyl alcohol by hydrolysis of allyl chloride using aqueous sodium hydroxide.

The thermochemistry of allyl chloride manufacture is discussed. Heat balance is presented and process variables pointed out.

Two flow sheets, seven tables, nine charts and two photographs illustrate the article. (From "Chemical Engineering Progress" June, 1947)

★

### Use of Infrared Spectroscopy in the Analysis of Liquid Hydrocarbons

Details of the application of infrared spectroscopy to the analysis of hydrocarbon mixtures is described in a five and one half page article.

A typical analysis of an octane fraction illustrates the development of the procedure. Eleven tables and three diagrams illustrate the article. (From "Analytical Chemistry" May, 1947)

★

### Determination of Water in Tetrachloroethane, Hexachloroethane, and Chlorinated Paraffin

A schematic drawing illustrates the equipment employed for water determination described in this two page article. Details of the apparatus, calibration and the methods used for each of the procedures are described. (From "ASTM Bulletin" May, 1947)

★

### Use of Plastics in Refrigeration Equipment

Five pages in this article are devoted to pointing out the possibilities of applying plastics to refrigeration equipment. General and specific advantages to be obtained from the use of certain plastics are cited. Illustrated with eight photographs and two tables. (From "Refrigerating Engineering" June, 1947)

★

### Instrument Department Organization in a Chemical Plant

Six pages are devoted to the importance of instrumentation from the standpoint of process design, maintenance, and servicing.

Article points out the purpose of instrumentation in relation to production, product purity and uniformity, safety,

cost reduction and other factors.

Outlines the functions of the instrument department with a typical organization plan. Lists equipment employed in an instrument repair shop. Costs of operation of the department are shown. Three photographs are used to illustrate the article. (From "Chemical Engineering Progress" June, 1947)

★

### Supersonic Testing to Detect Metal Flaws

Possibilities of supersonic means for the detection of metal flaws are described in a five page article. Principle of the equipment employed is described and its application outlined. Typical tests on equipment are shown. Article is illustrated with numerous photographs, tables and figures. (From "Industry and Power" June, 1947)

★

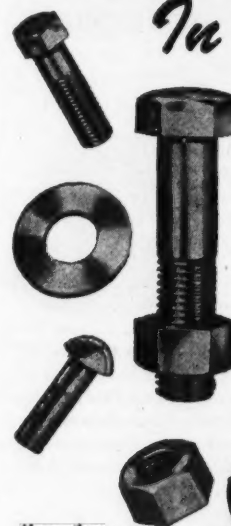
### Tonnage Oxygen at Reduced Cost

Two papers should be of interest to chemical and metallurgical engineers who have considered use of oxygen, in

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CHEMICAL PROCESSING Preview

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place of air for oxidation, in the operation of certain processes.

The first paper by Downs and Rushton lists potential examples:

1. Production of gas from coal by complete gasification.
2. Production of gas with a composition suitable for synthesizing hydrocarbons, oxygenated products and ammonia from coal and from natural gas.
3. Oxidation of ammonia or sulfur dioxide.
4. Portion oxidation of organic compounds of oxygenated derivatives.
5. Roasting and burning of sulfide ores, particularly those of low sulfur content.
6. Smelting iron ores and refining iron in the Bessemer converter and in the open hearth.
7. Combustion of fuels where unusually high temperatures are advantageous.

The advantages secured by the use of oxygen in each of these examples are discussed.

Plant costs are estimated for plant capacities from 120 tons of 95% O<sub>2</sub> per day up to 1000 tons per day and are:

120 tons per day \$ 900,000.00

1000 tons per day \$3,400,000.00

Operating costs through the same range of capacities are:

120 tons per day \$5.21 per ton.

1000 tons per day \$2.75 per ton.

The second paper by Walter E. Lobo describes a specific process for oxygen production based on "the application of some of the German ideas and of developments in this country in a project carried out under the auspices of the National Defense Research Committee."

A flow sheet shows the process, and details of construction and operation are pointed out.

Plant cost is said to be approximately \$5,000 per ton of capacity per day, and the cost of producing oxygen in a plant having a capacity of 350 tons per is estimated to be \$3.50 per ton.

Sufficient data are supplied, in the two papers, so that those interested in using oxygen in a specific process may make computations as to the economic feasibility of the application. (From "Chemical Engineering Progress" January, 1947.)

★

### Quantitative Analysis of Multicomponent Liquid Hydrocarbon Mixtures Using Infra Red Spectrometer

This three page article describes a method for making rapid analyses for all components of liquid hydrocarbon mixtures.

It combines distillation, infrared spectrometric and calculation procedures. Three tables illustrate the article. Method has an accuracy of 1% for each component. (From "Analytical Chemistry" May, 1947)

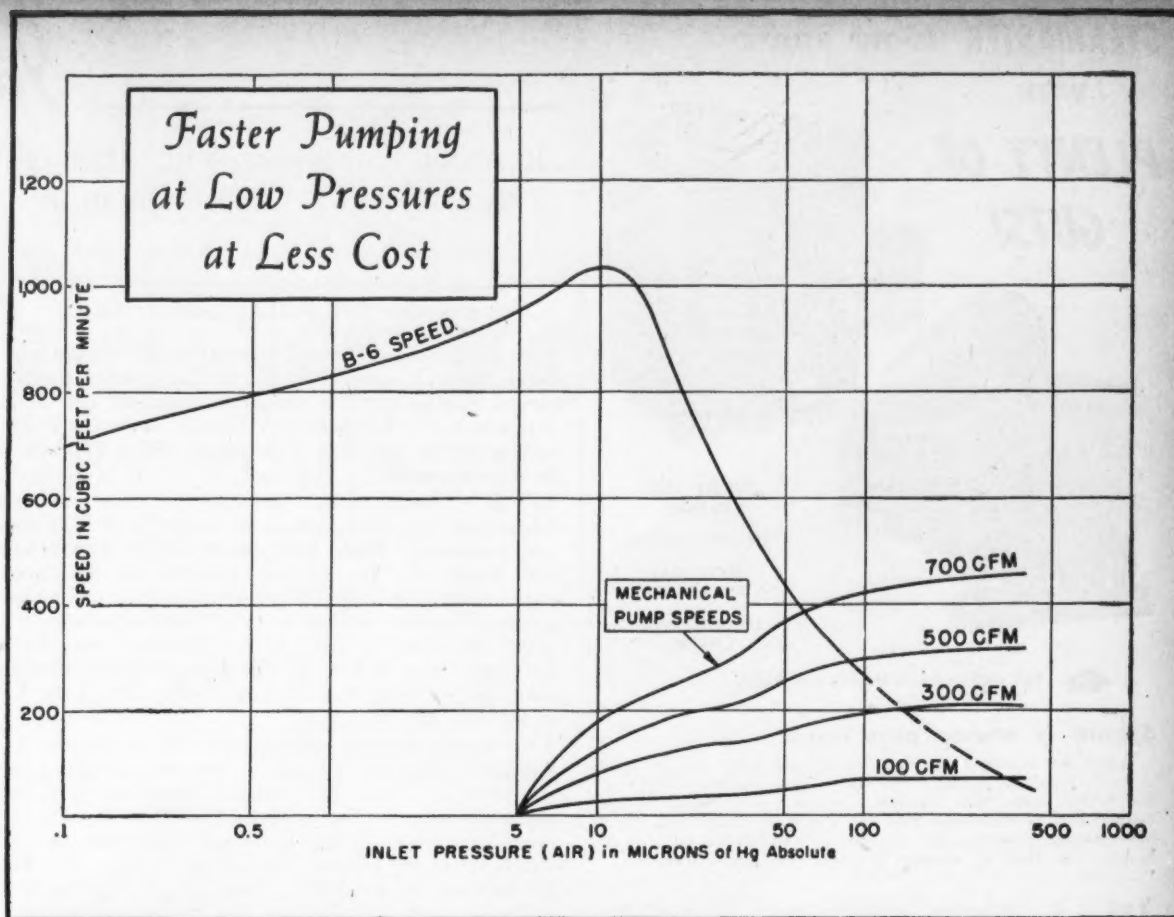
★

### Ignition Temperatures of Rigid Plastics

A seven page article describes a method for evaluating the temperature at which a plastic will ignite. A diagrammatic sketch shows the new apparatus employed in making tests.

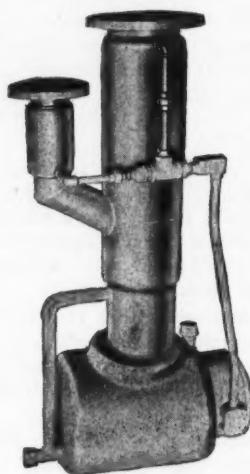
Flammability data are shown for over twenty-five different materials under a number of test conditions. Six charts and two tables illustrate the article. (From "ASTM Bulletin" May, 1947)

AUGUST, 1947



The B-6 BOOSTER TYPE DIFFUSION PUMP is worth investigating for Vacuum

Evaporation, Sputtering, Dehydrating, Impregnating, Distilling, or Degassing.



A mechanical pump can be made more effective in the micron pressure range by supplementing it with a B-6 Booster Type Diffusion Pump, or a large mechanical pump may be replaced entirely by the more efficient and less expensive combination of the B-6 and a small forepump.

The savings in capital investment, operating cost and installation space may surprise you. Write to National Research Corporation, Cambridge 42, Mass.

HIGH VACUUM FOR INDUSTRY  
**NATIONAL RESEARCH CORPORATION**  
Vacuum ENGINEERING DIVISION

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## STEAMASTER IS THE BOILER

WITH

# PLENTY OF GUTS!



WATER TUBE  
DESIGN  
INCLINED TUBES  
SECTIONAL  
STEEL HEADERS  
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DRUM

THE GUTS of the Steamaster Boiler

### Steam is water plus heat.

It is how that heat and water are utilized that makes a boiler good or bad. Now take a look at the guts of the Steamaster Boiler — the famed water tube principle, combined with sectional steel headers and inclined tubes gives you a superior design resulting in high thermal efficiency and economical maintenance . . . at no greater cost than an average so-called "packaged" boiler.

**Yes . . .** Steamaster Boilers have the guts that enable them to be fired over their rated capacity with no loss in efficiency — the guts to keep on economically filling your steam requirements year after year.

The advantages of a  
WATER TUBE BOILER  
Designed the Steamaster Way.

**Easy Inspection and Maintenance**  
Every tube immediately accessible. Just open the heavily insulated access doors.  
**Large Combustion Area.** Three Pass Heat Baffling. Gives high thermal efficiency — Economical consumption of fuel.  
**Positive Tidal Circulation of Water** maintains all parts at equal temperature.  
**Condensate Return System Built-in.** As an integral part of all boilers of 60 h.p. and up.  
**Choice of Fuel** — Gas, Oil or Coal. Whatever your fuel requirement is, there is a Steamaster Boiler to fill it. Use Gas, Oil or Coal or any combination.  
**Full Range of Sizes.** From 10 to 300 h.p. as illustrated. The Model A for 3½ h.p. — 5 h.p. and 7½ h.p.  
**Fully Equipped For Automatic Operation.** Finest accessories.  
**A.S.M.E. Code** — National Board Approved. Inspected and certified by Hartford Steam Boiler Inspection and Insurance Co.

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STEAMASTER IS THE BOILER WITH PLENTY OF GUTS.

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## Ideas

### Research Glassware Vital Part of New Product Experimentation

*Used extensively in Goodrich research which abandons fragmentary pilot plant findings for procedure that delivers complete data*

New product development is being handled most economically and successfully by the Avon Lake Experimental Station of B. F. Goodrich Chemical Co. It is designed to handle operations classified under the terminology of Development Laboratories, Pilot Plants and Semi-Unit works.

The B. F. Goodrich Co. looks to its central research laboratories for its fundamental research on materials and processes. These laboratories have a pilot plant unit which has the primary function of developing fundamental new chemical intermediates for use by the research chemists in their work. When this central research organization gives to the Chemical company a new material or a new process in the fields of organic chemicals or vinyl resins, it goes to the Avon Lake Experimental Station.

This station has the responsibility of thoroughly investigating the new product or process, including the perfection of: (a) The synthesis procedure; (b) The standardization of the quality; (c) Obtaining the required operating information; (d) The selection and development of suitable mechanical devices; (e) The development of production plant design; (f) The production of sufficient materials for market evaluation.

The original work at Avon starts on a laboratory bench, as a duplication of the synthesis submitted by the research laboratory. However, it quickly graduates to a micro engineering scale. A typical installation is shown in the illustration on the cover. It is indicated that the value of ordinary research laboratory glassware in training students is not fully appreciated. The impressive amount of valid engineering design data obtained from such micro setups as this one at Avon illustrate its effective use.

Of importance is the very low cost at which a very large number of process variables can be determined. From the micro plant which operates on a five to twelve litre scale, sufficient material can be obtained to permit the start of laboratory evaluations and development of finished products from these intermediates.

The study of the new material is then transferred from the micro units to a process building where, depending upon the circumstances, is built either a complete manufacturing plant in miniature or a standardized equipment setup.

The size of the manufacturing unit is determined directly by two factors. First, a desire to build the smallest unit that will give information directly usable by Engineering and Production. Second, the quantity of material requested by Development Sales groups for preliminary market evaluation.

In the case of certain types of reactions, experience has shown that information can be gathered only from results obtained through a full size production reactor. More often, however, smaller scale equipment gives results that the engineer is willing to extrapolate to production scale. Whichever requirement of the above

two conditions is the larger determines the size of the experimental unit.

For those processes where standard equipment setups



Laboratory-starting point of experimental work

are used, there are available stainless steel and glass units ranging from 50 to 300 gallons and operating from —20 to 180° C. with internal pressures up to 250 pounds.

The function of the Avon Lake Experimental Station is, therefore, the elimination of attempts to apply fragmentary pilot plant results to a full scale commercial production plant. Its contribution is the assurance that

## Here's the LOWDOWN on HIGH TOWER INSULATION

To get tower insulation...that won't loosen and fall away  
...that reduces frequent, costly repairs

### USE MONEL\*

Here's how. Fix insulation in place with stronger-than-steel Monel bands. Glove the entire insulation with tight-holding Monel poultry wire and you have insulation that stays tighter, longer—that fractions your present maintenance costs.

Monel works easily; rapidly. There's no delay in making joints. Yet Monel is tough and rigid, made to last. Monel is solid corrosion-resistant metal. It has no coat to chip or flake, exposing the metal beneath to moisture and chemical vapors.

For your next tower — or tower repair job — remember Monel . . . for bands and wire netting. \*Reg. U.S. Pat. Off.

- Weatherproofing
- Monel Reinforcing Netting
- Second Cement Coat
- First Cement Coat
- Monel Strip Bands
- Asbestos Blanket

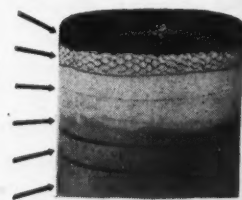


Photo courtesy of The Industrial Insulators, Inc., Houston, Texas.



THE INTERNATIONAL NICKEL COMPANY, INC.  
67 WALL STREET, NEW YORK 5, N. Y.

When inquiring specify CP 2211—see handy form pages 2-3

CHEMICAL PROCESSING Preview



the production plant when built will start producing quality material on a known schedule rather than too often costly and time consuming tinkering to get production rolling.

Manufacturer of the heating mantles is Glas-Col Apparatus Co., Terre Haute, Ind. Glassware used in rack assembly is made by Ace Glass, Inc., Vineland, N. J., and Scientific Glass Apparatus Co., Bloomfield, N. J.

★

## Summer Increases Hazards of Operations Involving Solvents

*Ventilation, cleanliness factors in avoiding vapor and dermatitis*

Solvent departments merit special attention when summer temperatures prevail. There is likely to be more solvent vapor in the work room in summer as solvent volatility increases with temperature. Dermatitis difficulties may also increase at this time.

Most solvent departments are equipped with mechanical ventilation throughout the year. Employees may be cautioned to exercise care in opening windows or changing the exhaust rate to increase personal comfort and thus interfere with mechanical ventilation.

Opening a window near a degreasing tank, for example, may set up a current of air which will reduce the efficiency of the exhaust and blow vapor into the workroom. Guards may be set up at the side of the tank to permit opening windows without disturbing the ventilating system.

Some solvent departments may depend upon natural ventilation, windows, skylights, etc. There are times during warm weather when such ventilation may be inadequate, especially when there is a little breeze. In the case of small solvent operations it may be possible to overcome this difficulty with fans placed in the workroom. It is important to be sure that the fans are not so located that they will increase the evaporation of solvent, or blow solvent vapors into the breathing area of workers. In most cases, local exhaust ventilation is desirable.

During summer months incidence to dermatitis may rise because of increased exposure of the skin.

Steps which may be taken to reduce dermatitis during summer include: provision for frequent washing with a mild soap, followed by the application of protective lubricating cream; an adequate supply of comfortable work clothing to permit frequent changing, plus the use of light gloves and aprons of suitable materials and provision of showers for use at the end of the shift. (Industrial Research Institute, 420 Lexington Ave., New York, N. Y.)

★

## Pocket Guide Presents Data for Storing Microfilm, Sheet Film, Prints

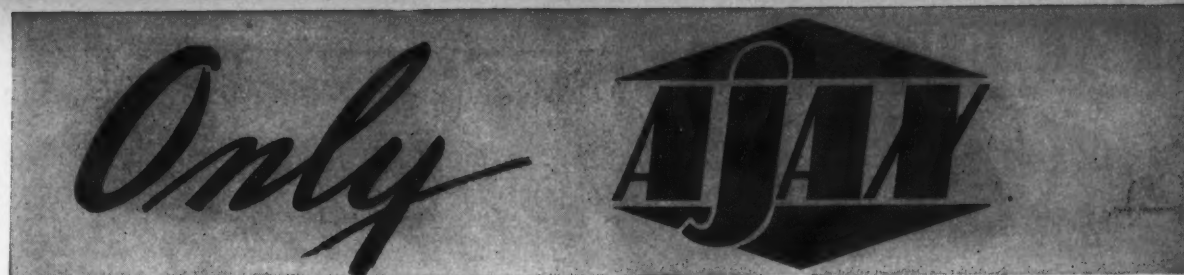
Suggestions and recommendations for safe storing of safety film base and paper base materials will be found in a 16-page pocket guide entitled, "Storage of Microfilms, Sheet Films and Prints." Storage of nitrate films is not covered.

This literature discusses protection; classification of records; short, archival and moderate-term storage; preparation for storage; fire protection; storage temperature and humidity.

EASTMAN KODAK COMPANY, Sales Service Division, Dept. CP, Rochester 4, N. Y.

When inquiring specify CP 2212—see handy form pages 2-3

AUGUST, 1947



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The exclusive Ajax design principles are responsible for the low maintenance cost and, in turn, low material handling costs.

1. 3 basic parts—the pan or tube . . . the vibrating or shaking mechanism . . . the motor, variable speed drive or other source of power to drive the shaker.
2. Completely self-contained, ready to use.
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4. Conveyor pan supported by flat springs mounted in rubber bushings,—no exposed bearings, no eccentric shafts, idler and tail pulleys.
5. Pan or tube can be made of ferrous or non-ferrous metal and can be lined or coated for protection against contamination.
6. Pans available with or without covers.
7. Tubular conveyors provide gas-tight construction for critical process and explosive operations.

Write giving outline and sketch of your requirements for handling dry aggregates.

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## CLEAN without soap



No Film  
No Streaks

You may like soapy cleansers—and think they're good—until you try the new wetting agent, Alconox.

**This amazing new cleanser**  
**Lifts off hard-to-clean dirt . . . Fast**  
No matter what you want to clean, or how dirty it may be, Alconox will make it sparkle. Yet it is gentle on the hands.

**Soapless but suds freely**  
**ALCONOX cleans almost everything**  
So you needn't stock different cleansers for different jobs. One spoonful makes a gallon.

**Just Wash and Rinse**  
**It's Sparkling Clean**  
Wiping practically unnecessary.

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cleans quicker*

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- LESS COST • LESS TIME
- A PERFECT MIX . . . That's Why

## MULTI MIXERS

are in Use in Hundreds  
of Chemical Plants



**THE MULTIPLEX CONCRETE MACHINERY CO.**  
**ELMORE, OHIO**

When inquiring specify CP 2215 . . . see information request blank, pgs. 2-3

## Ideas

### Methylation With Methyl Chloride

*Use of liquid methyl chloride under pressure offers advantages over the customary methods of methylation*

The customary reagents employed for methylations are: methanol, dimethyl sulfate, methyl bromide and methyl iodide.

An improved technique using methyl chloride has been developed in the research department of the Ansul Chemical Company. This is essentially for the investigator interested in determining suitable operating conditions for proposed industrial operations. It is easy to ascertain the most satisfactory conditions of temperature, pressure, ratio of reactants, solvent alkalinity and time with the technique and the equipment described.

The equipment recommended is shown in the illustration. Detailed operations are described for two methylations. The supply cylinder should have a capacity of not more than 3 lb. and should never be filled to more than one-half its water capacity. The small cylinder should never be heated until the regulating valve has been opened, and the pressure rise should be carefully noted while heating.

Reactor is evaluated initially and the pressure is raised to about 60 p.s.i.g. by methyl chloride addition and is sustained by heating the supply cylinder. The rate of methylation is directly proportional to the absolute pressure at a constant temperature. Temperature is

- Multi-Mixers have a paddle arrangement which not only assures a perfect mix but, by preventing the drag of the material against the liners, reduces friction which is so costly in repair bills and power waste.
- Multi-Mixers will mix all kinds of aggregates, or chemical mixtures — plaster, coloring material, core sands and facing material.
- Multi-Mixers are available in various sizes from 3 to 60 cubic feet and all models in all sizes have tight cover seal, or will be built to meet your specialized requirements.
- Multi-Mixers are available with side, end or bottom discharge — or with both side and end discharge.

- Multi-Mixers are available in 4 styles of drives: belt drive, motor drive with V belt, geared drive with motor, and direct geared head motor drive.

- Multi-Mixer liners and paddles are replaceable at moderate cost.

- Multi-Mixers can be installed to suit your plant arrangement: overhead mixing with skip loader, mixer mounted on truck, or skip loader direct to mixer.



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New, 12-page bulletin tells how, why and where you can use Duricon acid-proof equipment for corrosive wastes.

This handbook on Duricon drain line equipment tells about the ability of Duricon to defeat corrosion and gives engineering data, sizes, dimensions and drawings of the equipment — instructions on how to install — information on various applications etc.

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of bulletin 703.



**THE DURICON CO., INC.**  
DAYTON 1, OHIO  
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When inquiring specify CP 2216—see handy form pages 2-3

## PROTECT with EDWARD STRAINERS

Scale and dirt removed before damaging intricate working parts of traps, pumps, meters, pressure regulators, valves and similar equipment . . . for steam, oil or vapor service up to 600 lb. sp. at 850 F or hydraulic service up to 1440 lb. at 100 F.

Forged carbon steel body  
Monel metal perforated screen  
Only six functional parts . . . simple to install . . . easy to clean . . . built in sizes 1/4 in. to 2 in. with either screwed or socket welding ends.

Dimensions and Weights—Fig. 128

SIZE	1/4"	3/8"	1/2"	3/4"	1"	1 1/4"	1 1/2"	2"
End to End	3	3	3 3/4	4 1/4	5 3/8	6 1/2	7 1/4	9
Center to Bottom	3 1/4	3 3/4	4 3/8	6	7 3/8	9 1/4	10 1/4	12 1/4
Weight—lb.	1 1/4	1 3/4	2 1/4	4 1/2	7 3/8	13 1/4	22 3/4	40

Full details in Edward Catalog No. 103

**Edward Valves, Inc.**  
SUBSIDIARY OF ROCKWELL MANUFACTURING COMPANY  
EAST CHICAGO, INDIANA

When inquiring specify CP 2217—see handy form pages 2-3

CHEMICAL PROCESSING Preview

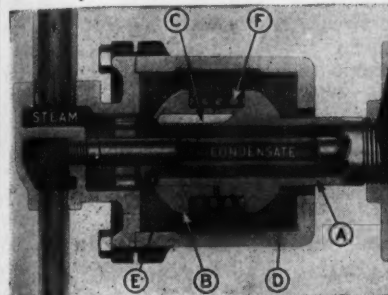


# Help

## FOR YOUR STUFFING BOX PROBLEMS . . .

Getting steam or liquids into rotating machine parts used to mean a lot of trouble with stuffing boxes and steam fits. The Johnson Joint has changed all that. It's completely packless, self-oiling, self-adjusting and even self-aligning. Industry is finding new uses for it every day. Type B illustrated provides for condensate removal; other styles and sizes for all needs. Write for details.

**THE JOHNSON CORPORATION**  
1326 WOOD ST., THREE RIVERS, MICH.



Nipple (A) connected to roll. Collar (B) is keyed (C) to nipple, but fits loosely so pressure can fill housing and force seal ring (D) in place. Both rings (D and E) are of carbon graphite, eliminate oiling and packing. Spring (F) is for initial seating only.

**JOHNSON Rotary Pressure JOINTS**

When inquiring specify CP 2218 — see handy form pages 2-3



## Container Quiz

What? why?  
Which? where?  
When?

•The answers to these 5 questions are of vital interest to all those concerned with the better packing of their products. "WHAT container will provide better protection, will best ship our products?" We think that General Boxes will provide better and more economical protection for your products. "WHY?" Because they're designed specifically to the product, as a "Part of the Product." "WHICH type of container will do the most efficient job?" The answer to this important question is provided by our Engineering Service. "WHERE is this service available?" For complete information just write our nearest office. "WHEN?" ... is best answered by your doing this right now.



ENGINEERED SHIPPING CONTAINERS

**GENERAL BOX COMPANY**

GENERAL OFFICES: 52, N. Dearborn St., Chicago 10, Illinois.  
DISTRICT OFFICES AND PLANTS: Brooklyn, Cincinnati, Detroit, East St. Louis, Kansas City, Louisville, Milwaukee, New Orleans, St. Paul, St. Petersburg, Wichita, Winchendon.  
Continental Box Company, Inc.: Houston, Dallas.

25 years experience in designing better containers for all industry.

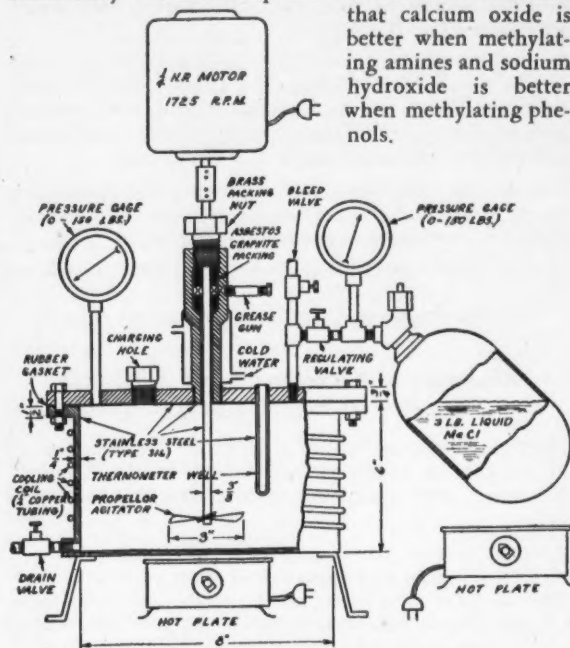
When inquiring specify CP 2219 — see handy form pages 2-3

AUGUST, 1947

## Ideas

maintained at about 70-100° C. The reaction is complete when the pressure remains constant. Since hydrogen chloride is produced in the examples given, it must be neutralized with an alkali to obtain satisfactory results. Experiments have demonstrated

that calcium oxide is better when methylating amines and sodium hydroxide is better when methylating phenols.



Laboratory model of methylation apparatus

### (A) Methylation of octadecylamine

The reaction mixture in the reactor is:

Octadecylamine 180 grams  
Water 400 grams  
Lime (94% CaO) 41 grams  
Methyl Chloride 98 grams added during 1 hr.

Temperature 70° C.  
Pressure 45 lb.  
Reaction time 1 hr.  
Agitator running at a speed of 1725 r.p.m.  
(Slow speed agitation does not suffice with water as the solvent.)

The conversion of the primary amine to the quaternary amine is almost quantitative.

### (B) Methylation of Phenol

The reaction mixture in the reactor is:

Phenol 94 grams  
Water 500 grams  
Sodium hydroxide 44 grams  
Methyl chloride 82 grams added during 3 hr.

Temperature 80° C.  
Pressure 60 lbs.  
Reaction time 3 hr.

Liquid content of reactor is removed; anisole layer is separated, dried with calcium chloride, and distilled. 100 grams of anisole, B.P. 153° — 154° C. is produced.

The yield is therefore:  
based on phenol 93%  
based on consumed methyl chloride 91%

Only 52 grams of the 92 grams of methyl chloride added entered into reaction. The excess methyl chloride is recoverable.

ANSUL CHEMICAL CO., Dept. CP, Marinette, Wisc.

When inquiring specify CP 2220 — see handy form pages 2-3

for • SPRAYING  
• WASHING  
• RINSING  
• COOLING  
• AIR CONDITIONING

# YARWAY SPRAY NOZZLES



Get the most out of your Spraying Equipment with minimum power . . . with efficient spraying.

Use Yarway Nozzles. No internal vanes or other restrictions to clog or hinder flow. Two types—Yarway Involute-type producing a fine hollow spray with minimum energy loss, and Yarway Fan-type producing a flat fan-shaped spray with time-saving slicing action for cleaning.

Wide range of standard sizes and capacities. Cast or machined from solid bar stock.

Thousands in use. Write for new Bulletin N-616.

**YARNALL-WARING COMPANY**  
125 Mermaid Avenue Philadelphia 18, Pa.

When inquiring specify CP 2221 — see handy form pages 2-3

## ... WHICH?

We show two Eastern pumps whose performance characteristics as shown on the charts are quite similar. They are designed for widely differing purposes, however, and the application will determine the type of pump which should be used.

### MODEL E-7 SINGLE STAGE CENTRIFUGAL PUMP

... is a high speed, light duty model designed for intermittent use ... where compactness, light weight and minimum size are important factors. As it is equipped with a Universal motor, the pump should not be used near inflammable liquids. This motor has a brush life of 3,000 to 5,000 hours. Equipped with either stuffing box or a mechanical rotary seal. The performance chart of model E-7 is shown here.



MODEL E-7

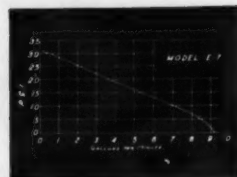
Size: 9" x 4" x 4"

Weight: 8 lbs.

Power: 1/5 H. P.

Motor: General Electric Universal Motor.

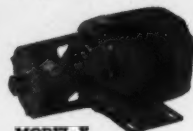
Alloys: Available in Cast Iron, Bronze, Stainless Steel, Monel Metal and Hastelloy.



## OR?

### MODEL F SINGLE STAGE CENTRIFUGAL PUMP

... is a heavy duty pump designed for continuous heavy duty industrial use. Powered by a General Electric induction motor for long silent trouble-free operation. Available with either stuffing box or mechanical rotary seal. All motor enclosures, including explosion proof Class I, group D, are available.



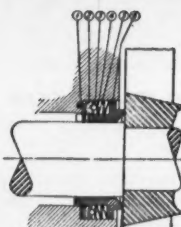
MODEL F

Size: 11 1/2" x 6 1/2" x 6 3/4"

Weight: 35 lbs.

Power: 1/3 H. P. in semi-enclosed, totally enclosed or explosion proof frames.

Alloys: Available in Cast Iron, Bronze, Stainless Steel, Monel Metal and Hastelloy.



Construction Detail  
Rotary Seal

NO.	Part	Qty.
1	Lock Washer	
2	Synthetic Rubber Packing	
3	Con. Seal	
4	Flat Washer	
5	Seal	
6	Seal Ring	

If you need small, highly efficient pumps for industrial uses, Eastern has over 800 variations for your application or will be pleased to design and produce one to meet your specific needs when a reasonable quantity is involved.

**EASTERN INDUSTRIES**  
Incorporated  
**NEW HAVEN, CONNECTICUT**  
Newton, Massachusetts      Norwalk, Connecticut

When inquiring specify CP 2222 — see handy form pages 2-3

## New Literature

### Cause and Cure of "Water Hammer" Described and Tabulated in Factual Bulletin

"Water Hammer—Its Cause and Cure" is a 6-page combination instruction sheet and bulletin describing sealed air chambers.

Includes 8 pressure flow charts prepared from research data at University of Wisconsin. These contain information concerning pipe size necessary to deliver required gpm in new building; gpm flow in existing installations; also pressure loss in any length and size of pipe.

Five selector tables provide ready means for determining correct size sealed air chamber for each job. Includes installation instructions, suggested applications.

WADE MANUFACTURING COMPANY, Dept. CP, Elgin, Ill.

When inquiring specify CP 2223 — see handy form pages 2-3

### Resistance of Nickel to Caustic Alkalies Is Theme of 20-Page Technical Guide

A 20-page technical bulletin is entitled, "The Resistance of Nickel and Its Alloys to Corrosion by Caustic Alkalies." Illustrated with equipment photographs and numerous tables.

Contents discuss caustic solutions and concentrations of various strengths (10 pages), also effect of sulfur "shading" on nickel cast irons; other alkalies; industrial applications; caustic soda manufacture; transportation; viscose rayon; soap; pulp and paper; petroleum refining. 26 available bulletins and working instruction manuals are listed. Technical Bulletin T-6.

THE INTERNATIONAL NICKEL COMPANY, INC., Development & Research Division, Dept. CP, 67 Wall St., New York 5, N. Y.

When inquiring specify CP 2224 — see handy form pages 2-3

### Protection from Sudden Toxic Atmospheres Is Purpose of 13-1/2-lb. Front-Type Mask

Self-contained demand masks for respiratory protection from oxygen deficiency or high concentrations of toxic gases are fully illustrated and described in a 4-page bulletin.

Literature covers front-type masks of about 13 1/2 lbs. weight for short duration use, with service life of 8 to 10 minutes. Described as an escape apparatus for leaving suddenly-developed toxic atmospheres or for jobs requiring quick completion. Also describes half-hour demand back-type masks for rescues, fire fighting, etc. Bulletin B-16.

MINE SAFETY APPLIANCES COMPANY, Dept. CP, Braddock, Thomas and Meade Sts., Pittsburgh 8, Pa.

When inquiring specify CP 2225 — see handy form pages 2-3

### Uses, Properties of Nitrosyl Chloride Told in 34-Page Technical Guide

Technical information on the properties and uses of nitrosyl chloride (NOCl) is presented in a 34-page multigraphed handbook.

Useful for research work, this literature reveals chemical and physical properties and describes all-nickel cylinders and fittings for storing and shipping. Supplies information on handling, laboratory preparation, safety

measures and typical industrial applications. Includes charts, sketches, bibliography and patent references designed to assist technical and research men responsible for new chemical developments. Booklet NC-1.

THE SOLVAY PROCESS COMPANY, Product Development Section, Dept. CP, 40 Rector St., New York 6, N. Y.

When inquiring specify CP 2226 — see handy form pages 2-3

### 500-5000 gpm Single-Stage, Double-Suction Centrifugal Pumps have 20 to 300' Heads

Single-stage, double-suction centrifugal pumps of 500 to 5000 gpm capacities and total net heads of 20 to 300' are graphically described in a 6-page circular. Large, detailed cut-away drawings, photographs and diagrams are enhanced by complete gpm-rating and dimension tables. Construction of component parts fully described. Bulletin 227.

WARREN STEAM PUMP COMPANY, INC., Dept. CP, Warren, Mass.

When inquiring specify CP 2227 — see handy form pages 2-3

### Acetylene Generator and Manifold Catalog is 22 Pages

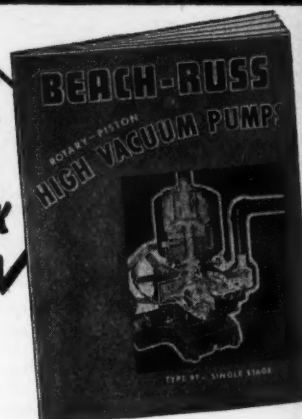
Dual-purpose 22-page catalog covers stationary and portable acetylene generators, also oxygen manifolds for use with double and single banks of cylinders. Space is devoted to stationary-type acetylene manifolds; duplex-type manifolds for hydrogen, other gases; porta-

## HOW TO IMPROVE YOUR VACUUM PROCESSES

FIRST

Get a Copy  
of THIS  
NEW BOOK

SECOND



THIRD

Learn how the design and performance of Beach-Russ Type RP Pumps, tied into your vacuum equipment, can improve product quality and production efficiency and cut operating costs. You'll see plenty of reasons why their high vacuum capacity and superior service make these pumps a logical choice on your next high vacuum job.

Study the long list of satisfied users, consult any among them, whose vacuum processes may be similar to yours. Let their opinions help guide your choice of the right pump for your plant.

**BEACH-RUSS COMPANY**  
46 CHURCH STREET • NEW YORK 7, N. Y.

When inquiring specify CP 2228 — see handy form pages 2-3

CHEMICAL PROCESSING Preview



ble manifolds for both oxygen and acetylene, and gas control and safety devices for pipe lines.

300-lb. single and double rated acetylene generators are described, also 300-lb. double rated. Portable types are 15 to 50 lbs. Three pages of diagrams show typical manifold installations, their flexibility and adaptability. Oxygen portable manifold information is also applicable to carbon dioxide, other gases.

AIR REDUCTION SALES COMPANY, Dept. CP, 60 E. 42nd St., New York 17, N. Y.

When inquiring specify CP 2229—see handy form pages 2-3

### Offers Engineering Specifications for Prefabricated Insulated Pipe Units

Comprehensive engineering specifications for underground pipe distribution systems employing a prefabricated insulated pipe conduit are contained in a 16-page, illustrated bulletin.

Data are presented in convenient tabular form with supplementary diagrams and charts. Includes tables of dimensions for one or more conduits in one trench, tables of maximum conduit capacities for wrought iron and steel pipe sizes, also standard prefabricated expansion loop details and loop dimensions expansion charts for steel and wrought iron pipe.

Construction details and accessories are covered. From 4626 forwarded on request.

THE RIC-WIL COMPANY, Dept. CP, Cleveland, O.

When inquiring specify CP 2230—see handy form pages 2-3

### Waterproofing, Vapor-Sealing Coal Tar Pitch Coating Described in Bulletin

"Bituplastic," a highly refined coal tar pitch coating for waterproofing and vapor-sealing, is described in a four-page, two-color bulletin.

Literature lists applications such as above-ground tanks, cooling towers, metal buildings, roofs and metal, masonry or concrete walls. Also railings, gutters, fire escapes. Gives details concerning its quick drying, fire retardancy, ability to withstand dry temperatures of minus 50° to plus 500° F., applicability by brush or spray. Five other coatings for specific jobs are described on the back page.

Literature, "Koppers Bituplastic," forwarded on request.

WAILES DOVE-HERMISTON CORP., Subsidiary of Koppers Company, Inc., Dept. CP, Westfield, N. J.

When inquiring specify CP 2231—see handy form pages 2-3

### Circular Describes Portable Steam Units for Equipment Cleaning

Portable vapor steam cleaner machines for general industrial equipment, trucks, etc., are illustrated and described in a 4-page, illustrated circular.

Literature covers operation, types, special features, specifications, accessories, also various compounds for cleaning machinery, stripping paints and cleaning heater coils in hard water areas. Units operate on fuel oil, kerosene or light oil, feature minimum number of operating valves. Includes cross-sectional operational diagram.

WHITE ENGINEERING & MFG. CO., INC., Dept. CP, 62 W. Passaic St., Rochelle Park, N. J.

When inquiring specify CP 2232—see handy form pages 2-3

AUGUST, 1947

## Over Any Apparatus Support Frames And Clamps

# The New UNIVERSAL CLAMP

(PATENT PENDING)

Encouraged by the enthusiastic reception of the Insta-Mount, we have now developed the greatly improved Universal Clamp—designed to give large, rigid frames with the use of a minimum of clamps. Check these features on the Universal Clamp's outstanding 5-way improvement.

### 1 IMPROVED APPEARANCE

- ✓ Modern functional shape
- ✓ Attractive polished finish

### 2 IMPROVED CONSTRUCTION

- ✓ High melting aluminum alloy—will not disintegrate in Bunsen burner flame
- ✓ Corrosion-resistant throughout
- ✓ High strength machining—not a casting

### 3 IMPROVED VALUE

- ✓ Quantity production of automatic screw machines permit exceptionally low price
- ✓ Versatility of clamps enables construction of frames for maximum rigidity at new minimum cost

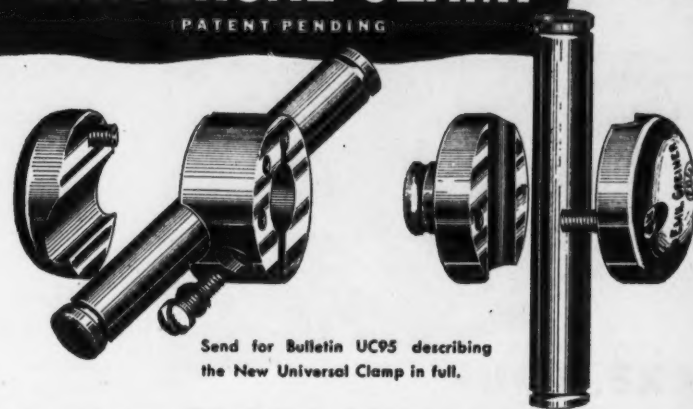
### 4 IMPROVED SAFETY

- ✓ Smooth surfaces throughout—no sharp or protruding edges to catch operator's clothing or cut skin

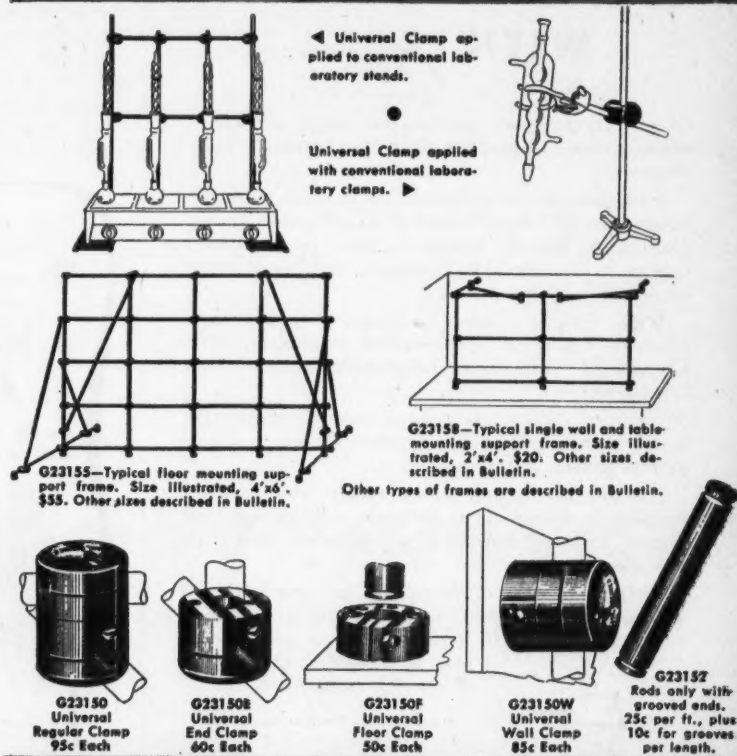
### 5 IMPROVED DESIGN

New patentable features giving complete versatility:

- ✓ Can be completely and quickly dismantled—and can be introduced into any part of an existing frame without any disassembly
- ✓ Absolute freedom in choice of any angular setting
- ✓ Can be positively locked into 0°, 45° or 90° angles
- ✓ Individual sections can be locked together in a positive manner
- ✓ All screws can be manipulated with an ordinary screw driver
- ✓ Powerful friction grip on all rods—no set screws to mar rod—surfaces and cause later difficulties
- ✓ Grooves in rods give positive locking device
- ✓ Special sections to facilitate firm fastening to walls or floors
- ✓ Special adaptations for end pieces to save use of extra clamps
- ✓ Additional special adaptations to give complete versatility, including multiple attachment of rods—and a universal swivel attachment giving any 3-dimensional angle



Send for Bulletin UC95 describing the New Universal Clamp in full.



Universal Clamp applied to conventional laboratory stands.

Universal Clamp applied with conventional laboratory clamps.

G23155—Typical floor mounting support frame. Size illustrated, 4'x6'. \$35. Other sizes described in Bulletin.

G23158—Typical single wall and table mounting support frame. Size illustrated, 2'x4'. \$20. Other sizes described in Bulletin.

Other types of frames are described in Bulletin.

G23150 Universal Floor Clamp 95c Each

G23150B Universal End Clamp 60c Each

G23150F Universal Floor Clamp 50c Each

G23150W Universal Wall Clamp 85c Each

G23152 Rods only with grooved ends. 25c per ft., plus 10c for grooves per length.

# The EMIL GREINER Co.

161 SIXTH AVENUE

Branch Offices:

112 BROADWAY, CAMBRIDGE, MASSACHUSETTS  
5709 DISTRICT BLVD., OAKLAND, CALIFORNIA

NEW YORK 13, N. Y.

Agency:

PACIFIC LABORATORY APPARATUS AND CHEMICAL CO.  
3555 WHITTIER BLVD., LOS ANGELES, CALIFORNIA

When inquiring specify CP 2233 . . . see information request blank, pgs. 2-3



## ARE YOUR WORKERS WASHING WITH *FIRE?*

Of all the precious assets your plant possesses, none is more important than the hands of your workers!

And dangerous undesirables in any worker's washroom are "fiery" hand cleaners whose strong alkaline or harshly abrasive action tends to irritate or injure the skin's surface, making it more susceptible to infection.

West Sulpho Hand Cleaner—a liquid skin cleanser made of sulphonated vegetable oil—is one of your best safeguards against this condition.

Neither dangerously high nor ineffectually low, Sulpho's pH is ideally neutral; its emulsive action gentle, not grinding.

An aid in cutting down costly absenteeism, Sulpho is designed to get out soil, grease and grime without harming or defatting sensitive dry skin.

Sulpho is one of hundreds of products developed by West for the promotion of effective sanitation. Consult with one of a nationwide staff of over 475 experienced West representatives.



Products That Promote Sanitation

**WEST** Company  
CLEANING DISINFECTANT • IN FLOORS • KITCHENS • BATHS  
RESTROOMS • LAUNDRY • SHOWER • AND MORE

42-16 WEST STREET  
LONG ISLAND CITY 1, N. Y.

★ BRANCHES IN PRINCIPAL CITIES OF  
THE UNITED STATES AND CANADA

When inquiring specify CP 2234—see handy form pages 2-3

## New Literature

### Freeze-drying Equipment for Pharmaceuticals Described in Illustrated Bulletin

18-page bulletin describes freeze-drying equipment for drying from the frozen state under high vacuum. Discusses choice of equipment dependent on various production factors. Several pages of illustrations show actual installations.

Bulletin includes discussion of pre-freezing equipment and procedure for processing medical materials. Charts and tables indicating storage temperatures of condenser surfaces and keeping quality of the product are included. Questionnaire to be used as a guide for securing more information is provided. Ask for Catalog No. 455-A.

F. J. STOKES MACHINE CO., Dept. CP, Tabor Road, Philadelphia 20, Penna.

When inquiring specify CP 2235—see handy form pages 2-3

★

### Tests of Chlorinated Camphene Insecticide Tabulated by University of Delaware

Chemical and physical properties and toxicity tests of Toxaphene, a chlorinated camphene with insecticidal properties, are revealed in a 28-page pocket manual.

Literature states that high kills with low concentrations were obtained with house flies, German cockroaches, bedbugs and certain fabric pests, which are enumerated. Tests are said to indicate this product equally as toxic as DDT to potato leafhoppers; effective as rotenone against Mexican bean beetle; promising for control of codling moth. Tables

### STRAPPING QUIZ:

**Q.** Which strapping tool will tie any shape?

**A.** The **STEELBINDER**

**only tool that ties round, square or irregular objects of any size**

The Steelbinder works with no part under the strap...no slack when the tool is removed. That's why it's the only tool for round shapes and why it "ties a tighter tie" on any shape. Also, only the Steelbinder handles 3/8", 1/2", 5/8", and 3/4" strapping up to .025" thick.

• Steelbinder Steel Strap binds three types of surfaces (1) round, (2) irregular, (3) square, on one stamping press. Circled area indicates parts strapped on the machine.

**2 free booklets...**  
**STEELBINDER**  
**BULKBINDER**  
*write for both!*

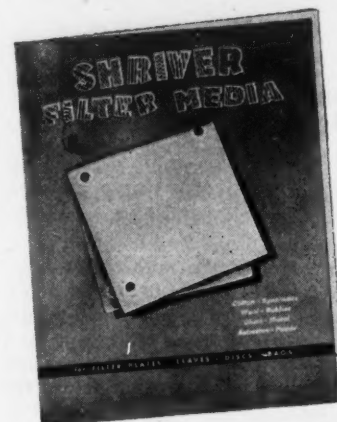
For Heavy Duty Strapping Use **BULKBINDER** Strapping Tools

**A.J. Gerrard & Co.**

221-Y NORTH LASALLE STREET, CHICAGO 1, ILL.

When inquiring specify CP 2236—see handy form pages 2-3

## HERE'S HELP In Selecting the Right Medium for Your Filtration Process



Describes the various types of textile, synthetic, metallic and other fabric filter media, their characteristics and types. Tells how Shriver Filter Media and service can benefit you.

Write Now FOR YOUR FREE COPY

**T. SHRIVER & COMPANY, INC.**  
846 HAMILTON STREET • HARRISON, N. J.

When inquiring specify CP 2237—see handy form pages 2-3

## Are You Risking Losses from COMPRESSED AIR EXPLOSIONS

There's Complete Protection

from Over-Pressure in

**BS & B**

**SAFETY HEADS**

Don't scoff... compressed air systems DO explode. Insurance records offer proof. Protect your machinery, plant, personnel. **SAFETY HEADS** provide that extra margin of safety!

- INSTANT ACTION, even to super-speed pressure waves.
- FULL, PIPE SIZE unrestricted relief opening.
- VERSATILE... 5 to 25,000 psi.

Write at once for Catalog. Address Special Products Division, Black, Sivalls & Bryson, Power and Light Bldg., Kansas City 6, Mo.



FOREIGN INQUIRIES INVITED

Circle Address: BLACK, SIVALLS & BRYSON, U.S.A.

**BLACK, SIVALLS & BRYSON, INC.**

KANSAS CITY, MO.  
CASPER, WYO.

OKLAHOMA CITY, OKLA.  
CALGARY, ALTA.

When inquiring specify CP 2238—see handy form pages 2-3

CHEMICAL PROCESSING Preview



## New Literature

present results of tests, and solubility, stability and effects of storage are described.

Bulletin 264. Technical No. 36.

UNIVERSITY OF DELAWARE, Agricultural Experiment Station, Dept. CP, Newark, Del.

When inquiring specify CP 2239 — see handy form pages 2-3

### Metal, Brick, Concrete Surfaces Protected by Corrosion-Resistant Maintenance Coating

Complete description of Dy-nes-co, corrosion-resistant maintenance coating, is contained in a 4-page, file-size bulletin. Literature lists outstanding properties, including adhesion to metals, brick and concrete; no primer required, and resistance to acids, alkalis, salt air and atmospheric conditions.

Product is described as a blend of synthetic and natural resins in a hydrocarbon vehicle. Applications are said to include plant equipment, structural steel, piping, stacks. Thinning, coverage, chemical tests, limitations and temperature range up to 550° F. dry heat, 180° F. water immersion, are discussed.

THE MERCHANTS CHEMICAL COMPANY, Dept. CP, Elm Court, Stamford, Conn.

When inquiring specify CP 2240 — see handy form pages 2-3

### Screen Interchangeability a Feature of Self-cleaning Gas-Liquid Strainers

Self-cleaning strainers for steam, air, gas or liquid service are described in 8-page illustrated booklet (Number 465). The illustrations show several typical strainer installations for protection of regulators, regulating valves, stop valves, traps and processing equipment. Also, the application of strainers to drain steam, air and gas lines.

Of interest are the advantages offered in the interchangeability of strainer screens. The standard screen materials for the various applications are conveniently listed. Tables showing screen specifications and total free hole areas facilitate selection of correct screen. Strainers' dimensions are given and a chart shows saturated and superheated steam flows and indicates pressure drops through strainers for various pressures and temperatures.

LESLIE CO., Dept. CP, 90 Delafield Ave., Lyndhurst, N. J.

When inquiring specify CP 2241 — see handy form pages 2-3

### Timing Motor with 60 rpm to 1/24 rph Speed Range Described in Circular

A self-starting, synchronous timing motor for applications in the instrument and control field is the subject of a 4-page bulletin.

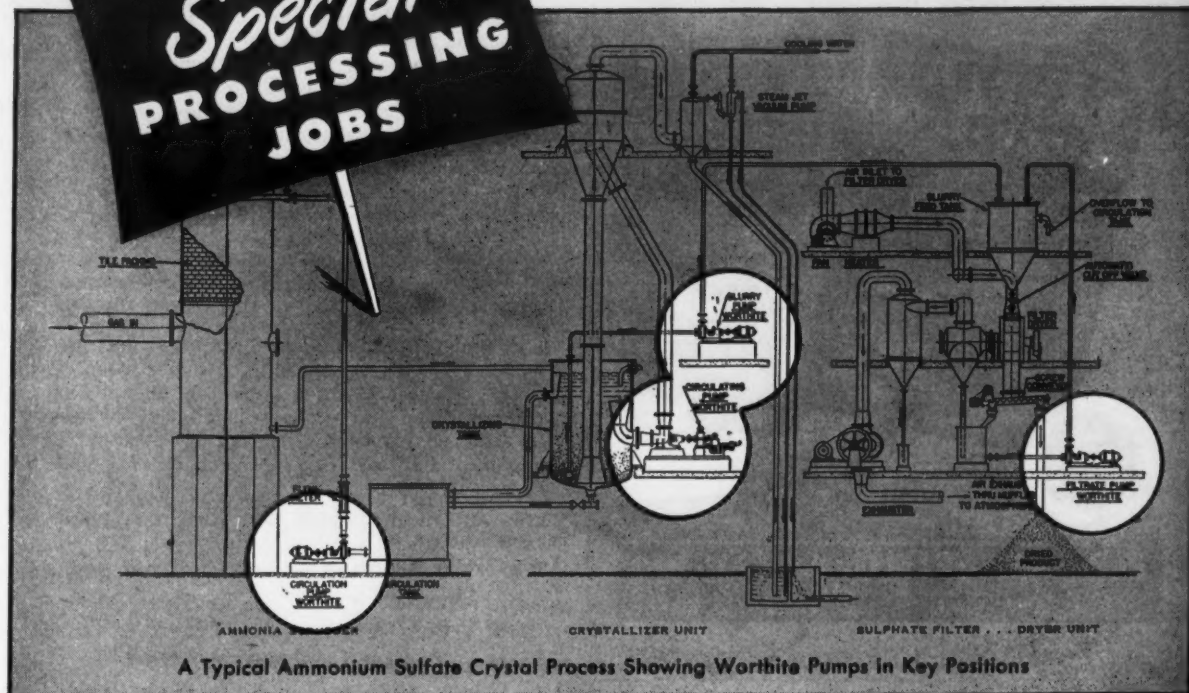
A full-page, cross-sectional view, twice actual size, points out features and construction of this product, which is described as filling a need between the ordinary low torque clock motor and the fractional hp group. Applications are listed, including signaling systems, heating controls, communications equipment, recording instruments, etc. Features and construction are discussed. Speed ranges from 60 rpm to 1/24 rph are tabulated, and specifications are presented. Bulletin 10.

THE R. W. CRAMER COMPANY, INC., Dept. CP, Centerbrook, Conn.

When inquiring specify CP 2242 — see handy form pages 2-3

AUGUST, 1947

FOR YOUR  
*Special*  
PROCESSING  
JOBS



Worthington Worthite Pumps have solved many problems involving corrosive or corrosive-abrasive liquids. For example:

In this modern ammonium sulfate crystallizer process, standard Worthington Worthite Pumps are used. At one point, a Worthite Pump handles crystals with negligible breakage — an important advantage, since unbroken crystals, being uniform and dustless, are superior to saturator-produced crystals and competitive with the best synthetic or imported product.

Here's an instance where Worthite Pumps benefit product

quality! In addition, their high resistance to corrosion and abrasion makes them ideal for handling a wide range of acids, alkalis and salts — clear liquids or slurries — efficiently and economically.

**Look Into This Improved Stainless Steel**

Learn more about Worthite —

a high-nickel, high-chromium, low-carbon molybdenum alloy steel. For facts that prove *there's* more worth in Worthington, call our nearest District Office. Or write to Worthington Pump and Machinery Corporation, Centrifugal Pump Division, Harrison, N. J.

# WORTHINGTON



THE  
WORLD'S LARGEST  
MANUFACTURER  
OF PUMPS



Types CG and CGL. Sizes 1/2" to 10". Capacities to 2000 GPM; heads to 200 ft. Liquid ends of WORTHITE alloy.



Type CF. Sizes 1" to 4". Capacities to 1000 GPM; heads to 130 ft. Standard, all iron and all bronzes.

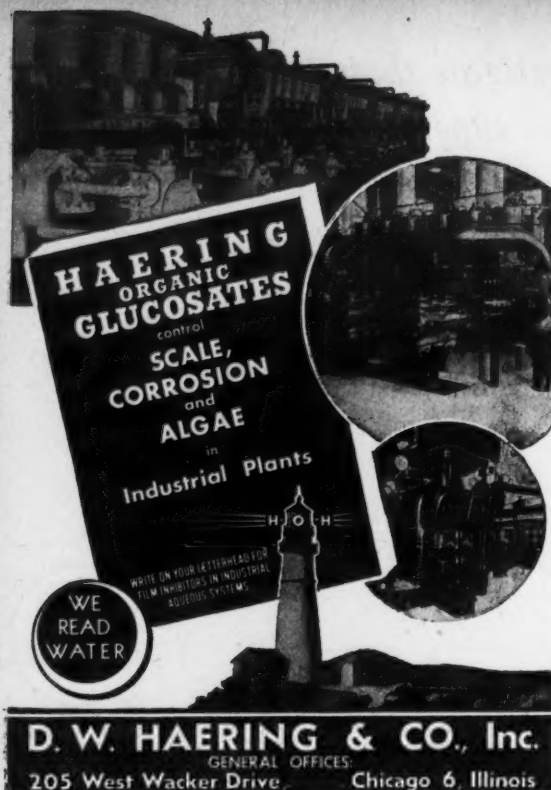


Type CB. Sizes 1 1/2" to 3". Capacities to 600 GPM; heads to 130 ft. at 1750 RPM. Closed impeller. WORTHITE shaft and bearings.



Type L. Sizes 2" to 8". Capacities to 2250 GPM; heads to 300 ft. Single stage volute. For general service.

When inquiring specify CP 2243 . . . see information request blank, pgs. 2-3



**HAERING**  
ORGANIC  
**GLUCOSATES**  
control  
**SCALE,**  
**CORROSION**  
and  
**ALGAE**  
in  
**Industrial Plants**

WE  
READ  
WATER

WRITE ON YOUR LETTERHEAD FOR  
FILM INQUIRIES IN INDUSTRIAL  
BUILDING SYSTEMS

**D. W. HAERING & CO., Inc.**  
GENERAL OFFICES  
205 West Wacker Drive Chicago 6, Illinois

When inquiring specify CP 2244 — see handy form pages 2-3



*Keep Trouble-Free*  
WITH  
**WALDRON**  
ALL STEEL  
SERIES "A" **Couplings**

Permits use of larger shafting and equipment.  
Requires less shaft extension  
Transmits no added pressure to either shaft  
Positive dust and oil proof Wallex Seal

To avoid the common sources of trouble, WALDRON Couplings have no flexible hub connections to fatigue, such as rubber bushings, spring grids, flexible pins, laminated discs, etc. Accurately machined forged steel parts permit operation at high or low speeds. Full details on request.

**JOHN WALDRON CORP.**  
Main Office and Works  
New Brunswick, New Jersey  
**COUPLINGS**

When inquiring specify CP 2245 — see handy form pages 2-3

## New Literature

### Horizontal-Type Steam Engines Operate with Throttling, Automatic Governors

Horizontal-type steam engines are illustrated, diagrammed and described in an 8-page bulletin.

Detailed photographs show types equipped with throttling or automatic governors. Sectional drawings, construction details and engineering data are presented. Component parts are described, and installation views are included. Lubrication is discussed. One page shows generating sets and two types of vertical steam engines. Bulletin No. 307.

TROY ENGINE & MACHINE COMPANY, Dept. CP, Troy, Penna.

When inquiring specify CP 2246 — see handy form pages 2-3

### Measuring of Air and Gas in Carbonated Beverages Explained in Illustrated Booklet

An air and CO<sub>2</sub> volume tester for measuring gases in carbonated bottled beverages is described in an 8-page booklet. Procedures for determining air and CO<sub>2</sub> are explained. The illustrations include a view of the complete setup of the tester in use and an "exploded view" showing all the parts in proper relationship, with the name of each part.

SCHWARZ LABORATORIES, INC., Dept. CP, 202 E. 44th St., New York 17, N. Y.

When inquiring specify CP 2247 — see handy form pages 2-3

### Link V-Belts Adjust to Any Length or Drive: 24-Page Catalog Shows How

Link V-belts which are adjustable to any length and



**SPRAY  
NOZZLE  
INFORMATION**  
CATALOG NO. 22

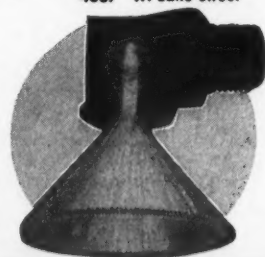
### FOR LOWER SPRAYING COSTS

Surprising as it may seem, spray nozzles alone are often a highly important element in the efficiency of a process or operation involving spraying. Spraying Systems can provide Spray Nozzles that offer two important advantages: (1) design based on a specialized experience in spray nozzle engineering and (2) wide range of sizes to obtain characteristics such as capacity and degree of atomization that meet specifications exactly. Write for Catalog No. 22... gives complete information.

### SPRAYING SYSTEMS CO.

4037 W. Lake Street

Chicago 24, Illinois



#### WHIRLJET

Spray Nozzles

made of hard rubber for  
Corrosion Resistance

Spray nozzles available made of hard rubber and related materials for resistance to corrosive liquids of all types. All standard nozzle designs and sizes including pneumatic atomizing nozzles.

SPECIALISTS IN SPRAY NOZZLE DESIGN AND MANUFACTURE

When inquiring specify CP 2248 — see handy form pages 2-3



**Saran** PLASTIC PIPE AND TUBING  
"By Commercial"

for thousands of industrial applications where a tough, strong and durable piping system is desired. Saran pipe is light in weight, attractive in appearance, and resistant to most acids and chemicals. Consult our Engineering Department on your application, or write for our new Catalog P-47 just off the press.

**COMMERCIAL PLASTICS CO.**  
201 No. WELLS ST. CHICAGO 6, ILL.

When inquiring specify CP 2249 — see handy form pages 2-3

## KEEP AIR OUT of Liquid Pressure Lines



### with this Air Relief Trap

A simply constructed, reliable relief trap that is positive in action and which requires no attention. It will not leak liquids under normal operating conditions. Positive air relief on Hot Water Heating Systems, Closed Water Tanks and Receivers, Pressure Supply Lines to Oil Quenchers, Process Piping, etc. Complete details in circular 282. Send for a copy today.

### Keep Liquid out of Air Lines —

There is no perceptible pressure loss through this Air Purifier — no moving parts to wear — no small ports to clog — self-cleaning. Moisture, oil and foreign substances are completely separated from compressed air. Also suitable for use on steam lines to obtain dry steam. Send for circular 441-A containing complete details.



Type "T" Air Purifier

### WRIGHT-AUSTIN COMPANY

318 W. Woodbridge St., Detroit 26, Mich.



**WRIGHT-AUSTIN**

SERVING INDUSTRY FOR MORE THAN 50 YEARS

When inquiring specify CP 2250 — see handy form pages 2-3

CHEMICAL PROCESSING Preview AUG



# TEST WATER PURITY

In  
30 Seconds

with a  
**BARNSTEAD**  
Purity Meter



for  
Distilled or Deionized  
Water

Every busy laboratory or plant needs this modern device for measuring the purity of distilled or deionized water used in tests and processes. Simple and easy to use, yet it is accurate and completely reliable. Measures total ionizable impurities as p.p.m. of sodium chloride. Metal conversion table attached to side shows equivalent readings in ohms (resistance) and micro-ohms (conductance) instantly. Send for Bulletin 115 for complete information and prices.

**AVAILABLE  
FOR IMMEDIATE DELIVERY**

**Barnstead**  
STILL & STERILIZER CO. Inc.

66 Lanesville Terrace, Forest Hills,  
Boston 31, Mass.

When inquiring specify CP 2251  
— see handy form pages 2-3

## New Literature

adaptable to any drive are covered in a 24-page catalog and guide.

Text explains how 316 standards sizes of industrial and fractional endless V-belts can be made up from only four widths of link V-belt, packed on handy reels. Pictures show construction details, how to couple and uncouple belt sections, how to measure and install. Includes engineering data and 13 pages of application photos. "Veelos" catalog forwarded on request.

MANHEIM MANUFACTURING & BELTING COMPANY,  
Dept. CP, Manheim, Penna.

When inquiring specify CP 2252 — see handy form pages 2-3

★

## Super-Pressure and Catalytic Hydrogenation Apparatus Subject of 88-Page Catalog

Superpressure and catalytic hydrogenation apparatus for pressures up to 100,000 psi and temperatures to 1000° F. is illustrated and discussed in an 88-page combination catalog and handbook.

Includes discussion of high-pressure processes. Presents typical high-pressure flow sheets, with detailed descriptions of high-pressure and high-temperature apparatus such as pilot plants for many types of chemical syntheses, reaction vessels and shakers, valves, fittings, pumps, compressors and instruments. Fully indexed for quick reference. Catalog 406.

AMERICAN INSTRUMENT COMPANY, Superpressure Division, Dept. CP, 8010 Georgia Ave., Silver Spring, Md.

When inquiring specify CP 2253 — see handy form pages 2-3

## STEAM-JET REFRIGERATION

*supplies*

**chilled water for  
rubber processing**



For cooling rubber rolls and Bamburgs, some 375 G.P.M. of water chilled to 40° F were required by a prominent rubber manufacturer. An adequate supply of low-cost extracted steam at 50 pounds pressure was available. Plenty of condensing water at not over 85° F could be taken from a nearby stream.

Careful investigation proved that an Ingersoll-Rand twin-booster steam-jet cooler would best fill the needs of this manufacturer. It was installed in 1941 and has been operating almost without let-up ever since. As with many such systems, chilled water is returned by gravity to a sump below the unit and drawn into the evaporator by vacuum effect—no return pump is needed.

Ingersoll-Rand Steam-Jet Coolers can be designed to use booster steam at any one of a wide range of pressures—even as low as 1 pound. Send for descriptive bulletins.

**Ingersoll-Rand**

11 Broadway, New York 4, N. Y.

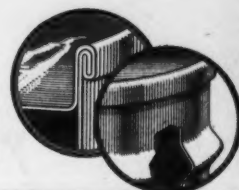
4-593

When inquiring specify CP 2254 — see handy form pages 2-3

# ...avoid this with... INLAND STEEL CONTAINERS

Leakage is something  
you don't have to worry about  
with Inland Steel Containers.

This shows how  
the five thick-  
nesses of steel  
form a chime.



These V-shaped  
hoops do not  
flatten out or  
dent easily.

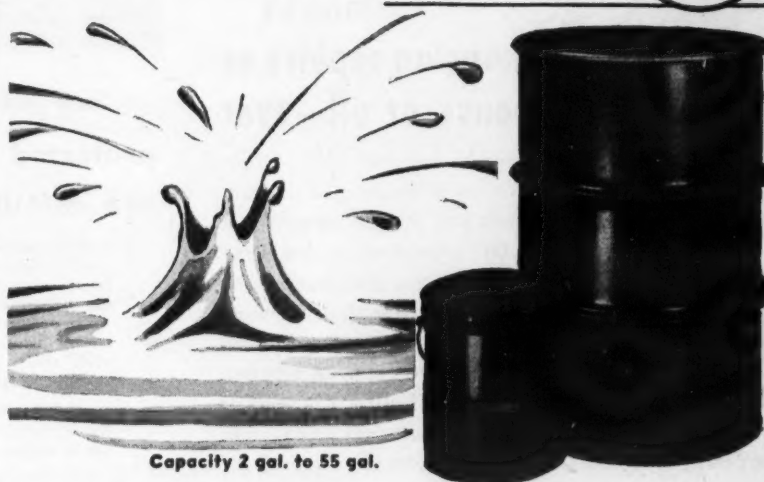
Section through lug type  
closure that is liquid-  
proof, airtight and sift-  
proof.



Protection bead on pails  
adds materially to its  
strength and utility.



Offset bottom, an impor-  
tant design feature of all  
Inland Steel Container  
pails permits containers  
to be stacked and rolled  
together.



Capacity 2 gal. to 55 gal.

**INLAND STEEL CONTAINER CO.**  
*Container Specialists*

4532 SOUTH MENARD AVENUE, CHICAGO 38, ILLINOIS

PLANTS AT: CHICAGO • JERSEY CITY • NEW ORLEANS

When inquiring specify CP 2255 — see handy form pages 2-3

## THIS HANDY PIPE WRENCH

*Cuts  
Tool Costs*

UNCONDITIONAL GUARANTEE  
If this Housing ever  
Breaks or Distorts we  
will replace it Free

THE RIDGE TOOL CO.  
ELYRIA, OHIO



**RIDGID**  
Guarantee  
means

no housing repairs or  
expense at all—ever

● For your worker — comfort grip I-beam handle he can throw his weight around with; adjustment nut that spins easily in all sizes, 6" to 60"; pipe scale on hookjaw that fits it to pipe without time waste. For your business — guarantee against warp or break of housing, no replacement expense and bother, fewer spares needed,

plus profit from fast, easy work. Follow the lead of enthusiastic users of millions of **RIDGID** tools—ask your Supply House for these efficient pipe wrenches.

**RIDGID**

WORK-SAVER PIPE TOOLS  
THE RIDGE TOOL COMPANY • ELYRIA, OHIO

When inquiring specify CP 2256 — see handy form pages 2-3

Page 46

## New Literature

### Illustrated Circular Describes Traps and Separators for Steam, Air, Oil or Gas

Traps and separators for steam, air, oil or gas service are subjects of a fully-illustrated descriptive circular. Various gauges, alarms and other boiler trimmings are included. Equipment is suitable for power plants, steam heating and processing equipment. Circular 715.

WRIGHT-AUSTIN COMPANY, Dept. CP, 315 W. Woodbridge St., Detroit 26, Mich.

When inquiring specify CP 2257 — see handy form pages 2-3

★

### Totally Enclosed Machine Tool Motors Need No Special Housing, Photos Reveal

Totally enclosed motors for all types of machine tools, which permit mounting in any location without special housing, are described in an 8-page catalog.

Thirteen installation photographs cover both fan-cooled and non-ventilated types as applied to various drilling, forging, milling, polishing and reaming equipment, gear shaving machines, etc. Also close-up views of motors and their component parts.

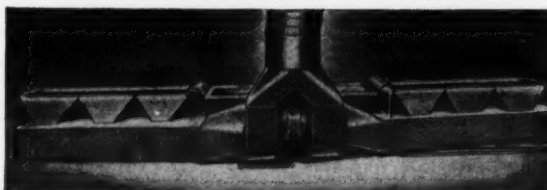
WAGNER ELECTRIC CORPORATION, Dept. CP, 6400 Plymouth Ave., St. Louis 14, Mo.

When inquiring specify CP 2258 — see handy form pages 2-3

★

### Basic Data on Casein Glues, Wood Lamination, Offered in Manual

Entitled "Glued Prefabricated Houses," this 8-page illustrated manual offers basic information on casein glues of



Fan Blades, Ducts and Hoods  
protected by **NUKEMITE**  
are IMMUNE TO CORROSIVE FUMES

Maintenance and replacement costs can be practically eliminated by coating fan blades, ducts and hoods with NUKEMITE. Easily applied by brushing or spraying, NUKEMITE quickly air dries to form a hard, tough film which is extremely resistant to corrosive fumes. It is impervious to acid, alkali and salt solutions, most solvents and extreme weather conditions as well.

NUKEMITE has a strongly adhesive capacity for all types of surfaces — wood, concrete or steel, yet is highly resilient and flexible.

Descriptive booklet mailed on request.

A complete NUKEMITE Trial Kit is available at \$2.95 (Postpaid in U. S.)

**NUKEM**

Products CORPORATION

124 COLGATE AVE., BUFFALO 20, N. Y.

When inquiring specify CP 2259 — see handy form pages 2-3

## INTERNATIONAL

**PORTABLE MIXERS**  
MEDIUM and HEAVY DUTY. Modern Design and many different types, Direct Drive, Gear Motor, Slow-Speed.

**PERMANENT MIXERS**  
With or without Tanks—Top or Side Entrance—Stirrers of the propeller or turbine type.

**DRY BLENDERS, AUTOCLAVES, KETTLES AND DIGESTERS**

**CATALOG**  
Of Mixers, Autoclaves, Blenders, Kettles, Digesters, etc. No. 110. Now ready. CATALOG No. 110 on BALL MILLS. Either catalog or both sent on request.

**BRON MIXERS**  
Built or Motor Driven

**INTERNATIONAL ENGINEERING, INC.**  
Dayton 1, Ohio.  
NEW YORK, 15 Park Row • CHICAGO, 407 S. Dearborn  
LOS ANGELES 4, 150 N. NORTON AVE.

When inquiring specify CP 2260 — see handy form pages 2-3

## EXTRA TRIPS

with



## ACID DRUMS



■ A Hackney 2-Piece Acid Drum is built to last—makes a greater number of trips. Why? Seamless cold drawn construction is one reason. Then there are no longitudinal or chime seams—only one circumferential butt weld located between and protected by two I-Bar rolling hoops. After fabrication, a special heat-treating process increases resistance to corrosion. Write for full details.



**Pressed Steel Tank Company**  
Manufacturers of Hackney Products

1463 South 66th Street, Milwaukee 14  
1387 Vanderbilt Concourse Building,  
New York 17

208 S. La Salle St., Room 2085, Chicago 4  
568 Roosevelt Building, Los Angeles 14  
235 Hanna Bldg., Cleveland 15, Ohio

When inquiring specify CP 2261 — see handy form pages 2-3

CHEMICAL PROCESSING Preview



practical interest to wood laminators. Discusses latest methods of applying bonding agents, up-to-date techniques for applying pressure and speeding curing of adhesives. A chart lists standard conditions for best results with casein glues.

11 service bulletins which describe details of glues and gluing methods are listed by number and title. These cover radio-frequency heating, spraying of synthetic resin and casein glues, and similar subjects.

CASEIN COMPANY of AMERICA, Technical Service Dept., Dept. CP, 350 Madison Ave., New York 17, N. Y.

When inquiring specify CP 2262  
— see handy form pages 2-3

#### ★ Data on Nitrogen Chemicals

Pocket-size, 18-page technical digest summarizes organic nitrogen chemicals offered by this manufacturer for research and development, some of them for the first time.

Two pages present a composite product chart illustrating range of products offered. Uses, chemical formulae, etc., are included.

AMERICAN CYANAMID COMPANY, Synthetic Organic Chemicals, Dept. CP, 30 Rockefeller Plaza, New York 20, N. Y.

When inquiring specify CP 2263  
— see handy form pages 2-3

#### ★ Gears of Laminated Plastic Are Long Wearing

Gears of laminated plastic, and how to make them, are described in a 16-page pocket manual.

Applications ranging in size from less than 1" pitch diameter to several feet are listed, such as drill and punch presses, bottling and textile machinery, fans, air compressors, pumps, sugar pulverizers and tachometers.

MICA INSULATION COMPANY, Dept. CP, P.O. Box 1076, Schenectady 1, N. Y.

When inquiring specify CP 2264  
— see handy form pages 2-3

#### ★ Stainless Welding Fittings

Stainless steel welding fittings for light gauge OD tubing are covered in a 16-page, illustrated catalog.

Gives complete information concerning methods in which these fittings are installed with light gauge commercial tolerance (OD) stainless steel tubing to provide lightweight, corrosion-resistant liquid conveying lines. Catalog 747.

TRI-CLOVER MACHINE COMPANY, Dept. CP, Kenosha, Wis.

When inquiring specify CP 2265  
— see handy form pages 2-3

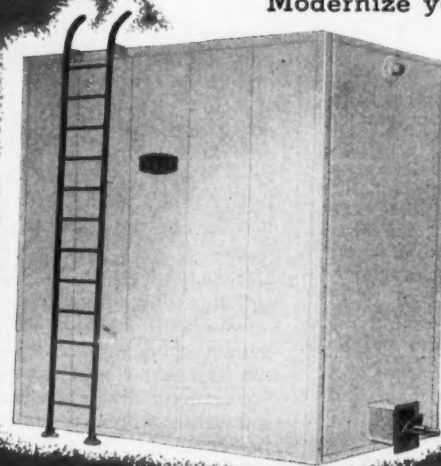
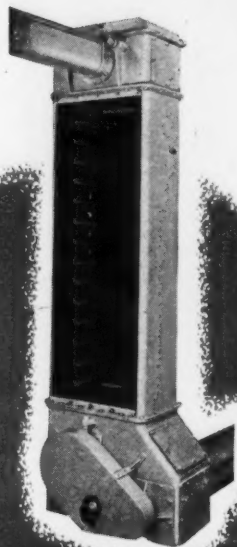
For more information on product at right, specify CP 2266 . . . see information request blank between pages 2-3.

# Modernize and Cut Costs

with



## Individually Designed MATERIAL HANDLING EQUIPMENT

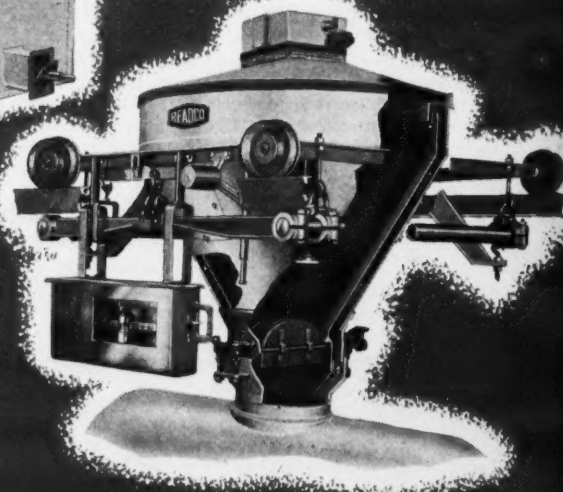


"Tailored" for your particular operation . . . modern READCO Material Handling Equipment means lower costs in your chemical plant.

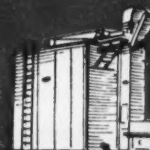
Soundly engineered READCO Equipment gives you greater operating efficiency—stepped-up production—years of dependable service.

Modernize your plant and cut material handling costs with READCO Equipment . . . individually designed for your particular operation.

READCO Material Handling Equipment is designed to suit your plant layout and built in any capacity desired. Bucket and screw type elevators, screw conveyors, dump or blending bins, storage bins, dustless automatic weigh hoppers, vibrating sifters or rotary sifters . . . all are engineered to give you perfect coordinated movement of powdered and granular material.



# READ



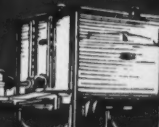
MATERIAL HANDLING



PILOT PLANT MIXER



LABORATORY MIXER



BLENDING & MIXING



PLANETARY MIXING

## MACHINERY DIVISION

of THE STANDARD STOKER COMPANY, INC. YORK, PA.

# 5-color magazine press prints to perfection with Farval on the job

THE press on which the color section of one of America's big national magazines is printed was doing a very indifferent job. Satisfactory 5-color printing, on heavy enameled stock, at high speed, required much higher bearing pressures—and the superintendent didn't dare screw the adjustments down any further. It just wasn't possible, with hand oiling, to supply enough lubricant to the bearings to keep them operating under greater pressures.

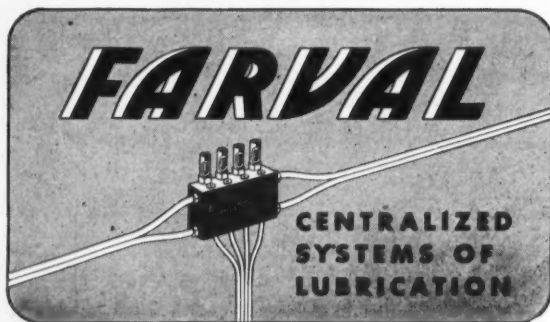
Then a Farval centralized lubricating system was put on the press, arranged to oil the bearings automatically, at 30-second continuous intervals. This step solved the problem. It is now possible, without danger to the bearings, to adjust the pressure to the exact point where perfect plate impressions and beautiful color reproduction are obtained.

Since Farval was installed there have been no bearing troubles, no shutdown periods for lubrication and no complaints of poor printing. Farval centralized lubrication made the difference.

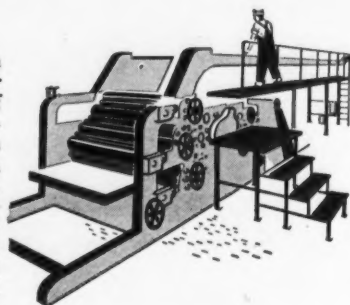
Farval delivers oil or grease under pressure to a group of bearings from one central station, in exact quantities, while a machine is in operation. Farval is the Dualine System with the Positive Piston Displacement Valve. This valve has but two moving parts and is fully adjustable, with a Tell-tale indicator at each bearing to show the job is done.

For a full description of Farval, write for Bulletin 25. The Farval Corporation, 3257 East 80th Street, Cleveland 4, Ohio.

Affiliate of The Cleveland Worm & Gear Company, Industrial Worm Gearing. In Canada: Peacock Brothers Limited.



FARVAL—Studies in  
Centralized Lubrication  
No. 94



## Ion Exchange Units Provide Low Cost De-mineralized Water

Require no heat, steam; operate from plant current

USES — Transforms tap water into the chemical equivalent of distilled water. For chemical, pharmaceutical, paint, paper, rubber, soap and other plants requiring pure, de-mineralized water supply.

FEATURES — The Model U-60 can be used to deliver water containing a maximum of 10 ppm ionized solids. It operates at a flow rate of 60 gallons per hour. The equipment is easy to operate and maintain. A built-in controller indicates the actual quality of all treated water leaving the unit; no auxiliary analytical tests are required.

DESCRIPTION — The Filt-R-Stil (U-60) employs four columns containing alternate beds of "ionac" cation and anion exchange resins. Due to the particular characteristics of the "ionac" resins employed, this Filt-R-Stil can be used to deliver water free from carbon dioxide; no auxiliary deaeration equipment is necessary. When the resins are "exhausted" they are regenerated by flowing dilute acid and alkali solutions over them.

A specially developed valve provided on each column controls the flow of all fluids into and out of that column. The controller measures the electrical resistance of the treated water. Water having a resistance of 50,000 ohms contains not more than 10 ppm of ionized solids.

When a higher quality water is required, the setting on the controller is easily changed and the signal light is actuated when the water falls below the desired resistance.

Standard Filt-R-Stil units are available in capacities ranging from 8 gallons per hour to 1200 gallons per hour while larger units are designed to individual needs.

AMERICAN CYANAMID CO., (Ion Exchange Products Dept.), Dept. CP, 30 Rockefeller Plaza, New York 20, N. Y.

When inquiring specify CP 2268 — see handy form pages 2-3

## Feeds Gases, Liquids Through Flexible Tubes Despite Solids

One machine can maintain flow in several isolated systems, or proportion liquids

USES — General purpose laboratory machine for ob-



De-Mineralizer U-60 power needs only  
that of 6 watt bulb

## Production Equipment

taining positive, unidirectional flow of liquids or gases through resilient tubing regardless of solids carried in the stream. For use with any combination of tubing in various sizes, or for handling a number of different fluids independently of each other at the same time.

For causing, with one machine, a flow in a number of completely isolated systems. Also for proportioning two or more fluids to same or different systems. For process engineers, chemical research workers, etc.

FEATURES — Offers many flow rates at a single machine speed. Construction makes unnecessary the coating of inner surfaces with resistant materials or use of expensive fabrication methods. Principle of operation completely eliminates any accumulation of solids such as often renders valve systems ineffective.

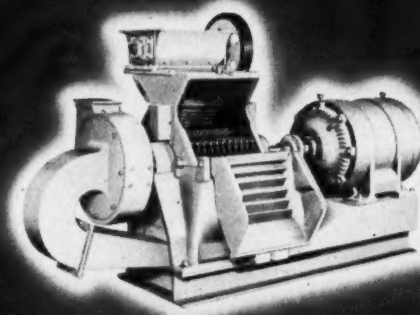
Combination of the above factors translates itself in low upkeep and general utility.

Permits use of tubing with wide range of internal diameters and of one or more wall thicknesses, without machine adjustment.

DESCRIPTION — Model T-6, as illustrated. Manufacturer recommends good grade of tubing such as gum rubber, which has rapid recovery rate, operating satisfactorily to speeds of 500 rpm. Does not recommend higher speeds.

Typical flow rates at 475 rpm vary from 5.1 to 29.1 gph, using 3/16 and 1/2" I.D. tubing, respectively; or from 1.5 to 27.3 gph, using respective tube combinations of 1/4-3/16" and 7/16-3/16". Proper selection of tubing is

## BUILT FOR . . .



LONG LIFE,  
and EFFICIENT, ECONOMICAL OPERATION

Superior performance . . . simple, rugged construction . . . economical, large-scale production . . . all combine to make the Sprout-Waldron Hammer Mill tops in its field.

SPROUT-WALDRON & CO.

Manufacturing Engineers

MUNCY

PENNSYLVANIA

When inquiring specify CP 2269 — see handy form pages 2-3

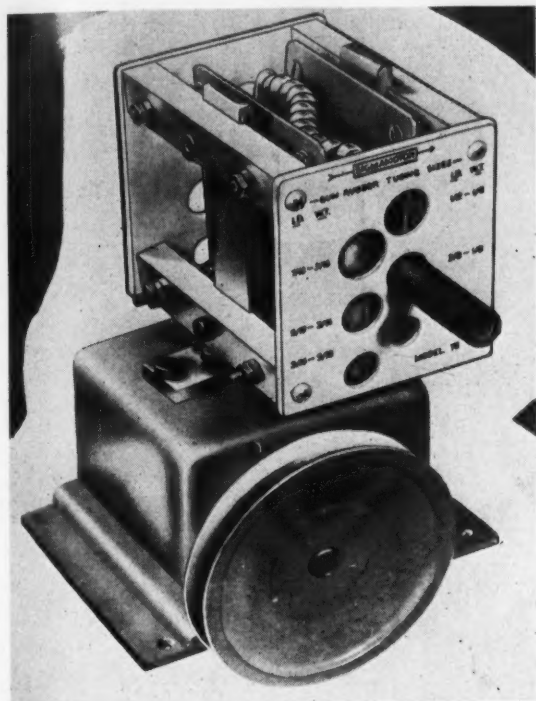
CHEMICAL PROCESSING Preview

When inquiring specify CP 2267 — see handy form pages 2-3



said to make possible maintenance of vacuums above 28" mercury and pressures up to 25 psi.

Force is applied to tubing by rapid, successive pressure of a series of metal "fingers", so arranged that tubing is always closed by one member of cycle. Section of



Chemical feeder machine

tubing thus acted on is constantly supported on both sides.

Regular equipment includes 4" V pulley. A 1/4 hp motor said to be sufficient for general purposes, although 1/16 hp is sufficient for small flows and low speeds. A 4-page, illustrated folder describes the unit.

THE SIGMAMOTOR MANUFACTURING COMPANY, Dept. CP, 211 Eighty-Second St., Niagara Falls, N. Y.

When inquiring specify CP 2270 — see handy form pages 2-3

★

### Fundamentals of Radio Frequency Heating Taught by Sound Slide Course

Basic sound slide course on Radio frequency heating is presented in series of eight 2-hour lecture units, in kit containing material for 20 class members.

Includes set of 15 slide films with matching phonograph records, 20 sets of review booklets plus quiz questions. Instructor's manual contains complete lecture outlines, quizzes, suggestions for presentation, more than 200 pages of reference material. Sets of illustrated review booklets available for extra class-members.

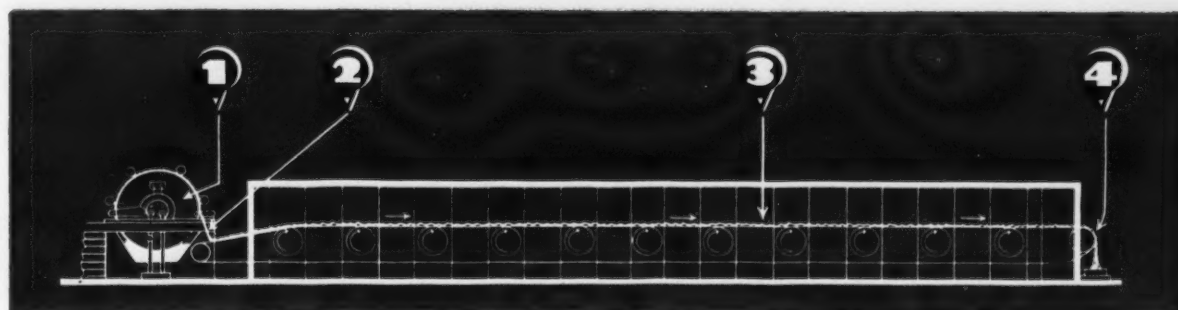
Outlines "rule of thumb" methods. Lecture units cover metal working applications, wood bonding, plastics pre-heating, drying and curing of rubber and textiles, thawing and deinfestation of food products by dielectric heating. Further information will be supplied.

WESTINGHOUSE ELECTRIC CORPORATION, Dept. CP, Box 868, Pittsburgh 30, Pa.

When inquiring specify CP 2271 — see handy form pages 2-3

AUGUST, 1947

## Nitro-guanadine uniformly dried at rate of 1,880 pounds per hour with



### the PROCTOR CONTINUOUS CONVEYOR SYSTEM

To meet output requirements and still maintain uniformity in the finished product, nitro-guanadine is dried in a specially designed Proctor continuous conveyor system. Here is what takes place: ① Nitro-guanadine is mechanically dewatered by means of a continuous rotary filter. While still on the drum of the filter, the material is scored, so that it will break into small pieces of uniform width and thickness as it is discharged to the conveyor of the dryer. ② With a moisture content of 67% (B.D.W.B.\*), the nitro-guanadine is then discharged to the conveyor of the dryer. At this stage it is in the form of small blocks about 1/2" square in thickness and 1 1/2" to 2" in length. ③ Loaded to a uniform depth on the moving conveyor, the preformed nitro-guanadine is conveyed through the drying chambers, where heated air is circulated through the bed of material. Temperatures in the drying chambers are graded upward, from 240° F. at the beginning of the cycle to 270° F. at the end. Having been preformed into uniform shapes, more rapid diffusion is possible,

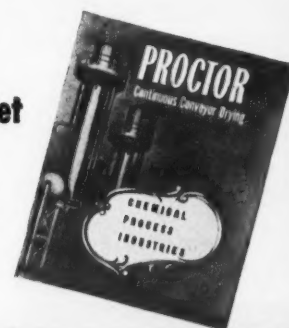
which accounts for the rapid drying and uniformity of the finished product. ④ After 67 minutes of drying time, the nitro-guanadine is discharged from the dryer at the rate of 1,880 pounds per hour (C.D.W.†), with a uniform moisture content of 0.25% (B.D.W.B.). By means of preforming the material and then drying it in the continuous conveyor dryer, it is possible for the manufacturer to secure a maximum output and still maintain uniformity.

Similar Proctor continuous conveyor drying systems, with preforming feeds designed for individual product requirements, are in operation for a wide variety of wet-solids. Since there are hardly two wet-solid drying problems exactly alike, it pays to consult Proctor engineers when you are considering drying equipment. On the basis of their experience in this field of drying, they will be able to make laboratory tests on your product and then translate the results into a recommended design that will meet your requirements.

\* Bone Dry Weight Basis  
† Commercial Dry Weight

### This is a case history taken from this new Proctor booklet

A new 12-page booklet on "Proctor Continuous Drying for the Chemical Process Industries" is available upon request. It contains many case studies showing the application for Proctor individually designed systems. Write for your copy of this informative booklet today.



**PROCTOR & SCHWARTZ, INC. · Philadelphia 20, Pa.**

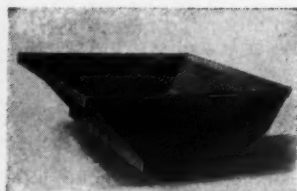
When inquiring specify CP2272 . . . see information request blank, pgs. 2-3



# Clean Grounds

.... at **HALF THE COST**

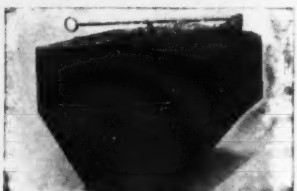
with a Brooks **LOAD LUGGER**



Standard Tilt-Type Bucket



Open-End Skip-Type Bucket



Enclosed-Type Water-Tight Bucket

Hundreds of firms are finding the Brooks Load Lugger indispensable in their various loading, hauling and dumping operations. Keeping grounds clean, collecting and carrying away furnace residue, loading and hauling plant waste, transporting finished and unfinished products — in short, almost any type of materials handling is facilitated with this highly versatile system. Operates hydraulically from power take-off . . . is one-man controlled . . . needs only 15 seconds for loading or dumping.

A Brooks Load Lugger installed on one of your trucks serves any number of detachable bucket bodies spotted at various loading points throughout your plant and grounds. Your loading crew keeps busy constantly loading, while the truck is constantly hauling, dumping, returning an empty bucket and picking up the next full one. And there's a bucket for every type of material whether light or heavy, liquid or dust, hot or cold. Write for catalog 1-A today.

**600 DAVENPORT ROAD,  
KNOXVILLE 8, TENN.**

*Distributors in all Principal Cities*

## Brooks EQUIPMENT AND MFG. CO.

When inquiring specify CP 2273 — see handy form pages 2-3

## Production

### Save Space, Cut Freight Claims with New Container, Report

*Made in various strengths and dimensions for bulk shipments of powders and parts*

**USES** — Square, fiber shipping containers in various capacities, dimensions and strengths for many uses similar to those of round containers, wooden boxes and kegs.

For bulk shipment of flaky or coarse-powdered products; or may be used with bag liners for fine-powdered and semi-liquid materials, or where a moisture vapor-proof barrier is required. For milk powders and de-



Fiber shipping container for bulk shipments

rivatives, flake and powdered soap, starch, and chemicals in powder or crystal form.

For nails, washers, nuts and bolts, screw machine products and numerous other small metal parts.

**FEATURES** — Reduces freight claims on shipment losses, requiring less dunnage and bracing in car loading. Manufacturer reports a 30% saving in warehouse and shipping space.

Easily handled and stacked, being small for weight carried, with corners and edges which are readily grasped and held. High top and side compression. Withstand rough handling. Easily opened and reclosed, if necessary. 30% greater capacity than round containers of the same height and width is claimed.

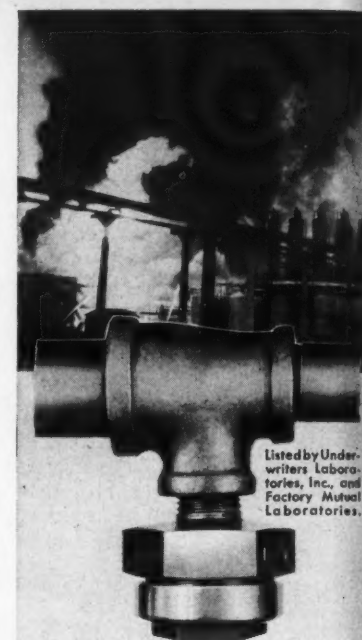
Can be printed in one or more colors, making an ideal background for advertising.

**DESCRIPTION** — Construction provides triple-wall thickness on all six panels, double score-line strength on all edges. Made of three pieces of solid fiberboard, top, bottom, and innersleeves, of grade and caliper suited to character and weight of product.

Delivered flat to user. Assembly consists of simple stitching operation on wire stitching machine provided with post-type, bottom-stitching mandrel. After filling, top is slipped over inner sleeve and sealed to bottom section with gummed tape. To open, slice tape with knife and remove top.

HUMMEL & DOWNING COMPANY, Dept. CP, 1514 E. Thomas St., Milwaukee, Wis.

When inquiring specify CP 2274 — see handy form pages 2-3



Listed by Underwriters Laboratories, Inc., and Factory Mutual Laboratories.

### WHERE HAZARDS ARE GREAT

Wherever an industry requires the storage or handling of materials capable of bursting instantaneously into an intense and devastating fire, the utmost in fire protection is none too good.

**Blaw-Knox Aquatomic Fog Nozzles** stop "bad fires" at the start.

These dependable non-clogging and hard hitting Fog Nozzles cool and quench sudden fires in mere seconds.

Install Aquatomic Fog Nozzles where the hazard is the greatest for 100% dependable protection.



*Also—*

Blaw-Knox offers Standard Wet and Dry Pipe Systems, as well as Thermostatically Controlled Pre-Action and Deluge Systems.

Write for details.

## BLAW-KNOX SPRINKLER DIVISION

831 Beaver Avenue, N.S.,  
Pittsburgh 12, Penna.

When inquiring specify CP 2275  
— see handy form pages 2-3

CHEMICAL PROCESSING Preview



## Production

### Plant-Wide Lubrication Cart Is Self-Contained

*Uses no connections. Maneuvers between closely-placed machines*

USES — Service cart for systematic, plant-wide lubrication. For greasing and oiling.



Plant-wide lubrication cart

**FEATURES** — Maneuvers easily between closely-placed machines. Speeds production schedules by reducing lubrication time. Makes systematic, multi-bearing lubrication practical, profitable.

Eliminates frequent trips to oil storage room. Requires no air or electrical connections. Lightweight, sturdy, compact and portable.

**DESCRIPTION** — Described as "a complete lubrication department on wheels," the service cart carries generous supply of three different lubricants: two greases and one oil. One-man operated.

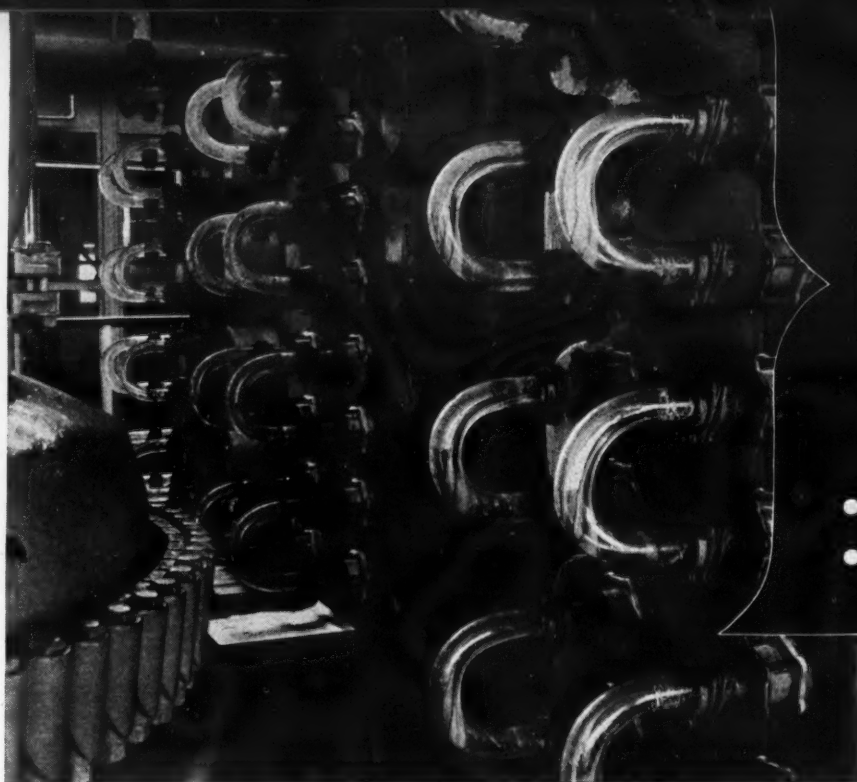
Mounted on two semi-pneumatic tires. Includes two 1-lb. lever guns and one ½ pt. pistol oiler. Pressure lube pump has built-in gun loader for hand guns. Lube and oil compartments easily filled without removing pumps. Red-enamelled.

Front section of cart incorporates large tool box with hinged lid. Box also serves as a platform step for operator to reach high bearings.

GRAY COMPANY, Inc., Industrial Division, Dept. CP, Graco Square, Minneapolis 13, Minn.

When inquiring specify CP 2276  
— see handy form pages 2-3

For more information on product at right, specify CP 2277  
... see information request blank between pages 2-3.



## with PYREX brand Glass Pipe . . .

- FEWER PRODUCTION STOPS
- FEWER REPLACEMENTS

Hoffmann-LaRoche, Inc., Nutley, New Jersey, selected PYREX brand glass pipe as the ideal corrosion-resistant, non-contaminating material for sensitive liquids carried in pipe lines. The installation shown is used for the recovery of ampul alcohol in a Vitamin B<sub>1</sub> process.

The excellence of pharmaceuticals manufactured by Hoffmann-LaRoche, Inc., Nutley, New Jersey, is known throughout the world. Throughout its plants, extensive use is made of PYREX brand glass pipe to assure product purity since PYREX pipe remains impervious to hydrochloric acid which is used in the refinement of many sensitive pharmaceuticals.

From an engineering standpoint, PYREX brand glass pipe also has been found economical to use wherever possible. Because of the visibility it provides, fewer production stops are necessary. Because of its composition, fewer piping replacements are needed. There is never any question about solvent reaction on piping or vice versa.

The use of PYREX pipe is growing constantly because it has proved such a practical plant material. When pipe line corrosion or product contamination are important factors, PYREX pipe and fittings will make possible increased production of better products at lower costs.

PYREX pipe is available in diameters of 1", 1½", 2", 3", and 4" in lengths up to 10 ft. Fittings of similar sizes are available in the form of elbows, tees, return bends, reducers, crosses, etc.

**TRY A TEST INSTALLATION OF PYREX PIPE  
IN YOUR TOUGHEST PROCESSING SPOT!**



At relatively small cost you can test the practicality of PYREX glass pipe in meeting your toughest requirements. Why not try a test installation now?

### CORNING GLASS WORKS CORNING, NEW YORK

SALES OFFICES: NEW YORK • CHICAGO • SAN FRANCISCO

CORNING GLASS WORKS, DEPT. CP-8, CORNING N.Y.

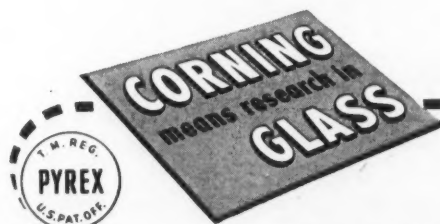
Please send me Bulletin 1A-3 describing PYREX brand pipe.

NAME.....TITLE.....

COMPANY.....

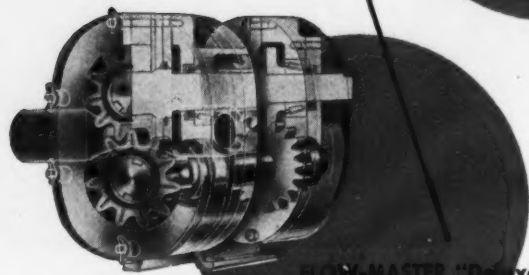
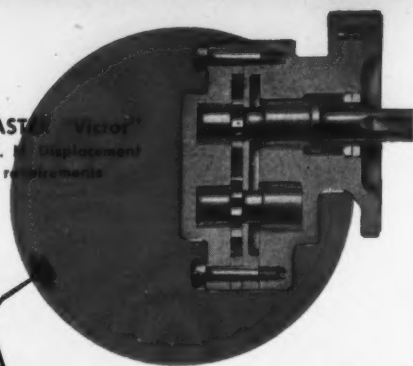
ADDRESS.....

CITY.....ZONE.....STATE.....



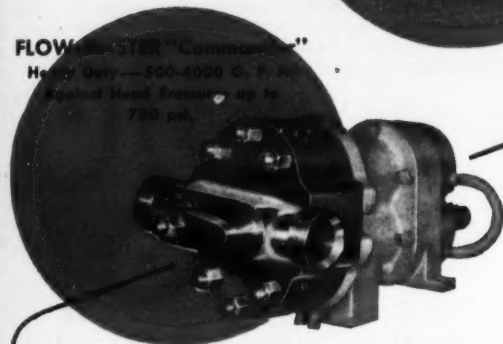
**PYREX GLASS PIPE**  
BRAND

**FLOW-MASTER "Victor"**  
5-300 G. P. H. Displacement  
to suit requirements



**FLOW-MASTER "Deluxe"**  
500-5000 G. P. H. Against Head  
Pressures up to 1000 psi.

**FLOW-MASTER "Common"**  
Heavy Duty—500-5000 G. P. H.  
Against Head Pressures up to  
750 psi.



These and other features make FLOW-MASTERS the finest stainless pumps available to American Industry. For more information, and for details on the Marco Dealer Franchise, write Marco Company, Inc. 11 Third Street, Wilmington 50, Del.

## FROM THE HOME OF NEW PROCESSES FOR AMERICAN INDUSTRY

FLOW-MASTERS are the precision stainless PUMPS that . . .

**LAST LONGER** because the rotors are hydraulically balanced to eliminate severe metal-to-metal contact. The design also incorporates a unique automatic wear control feature, so that FLOW-MASTERS maintain volumetric efficiency longer against normal wear which must inevitably occur.

**METER with EXTREME ACCURACY.** They are precision pumps of an entirely new design.

**HAVE NO GLANDS OR STUFFING BOXES**, so that ordinary packing troubles are eliminated.

**ARE SANITARY and EASY TO CLEAN** so that changeover from product to product can be accomplished quickly and easily.

**FLOW-MASTER Pumps—Homogenizers  
Kom-Bi-Nators  
Equipment For The Process Industries**



**MARCO COMPANY Inc. Wilmington 50, Del.**

## Production

### Air-Cooled Observation Port Fits Old, New Furnaces

*14-lb. unit easily installed in brick, firebrick or steel cased walls*

**USES** — Observation port for boilers, generators, laboratory furnaces, oil stills, bake ovens, all types of industrial furnaces.

**FEATURES** — Air-cooled. Easily installed in new or old furnace walls, whether common brick, firebrick or steel cased. Wide angle of vision permits operator to observe furnace and grate conditions without disturbing firing cycle and without exposure to heat or glare. Sturdy, practical, economical.

**DESCRIPTION** — Weight 14 lbs. Angle of vision, 60%. Air vents located at top and bottom of cover. Self-closing ribbed shutter and divided blue pyrex window. Window is held in place by spring wire retainer, eliminating bolts, other attachments.

Cover is streamlined, free of dust-catching ledges or pockets. Shipped completely assembled with anchor bolts and instructions, ready to install.

A. P. GREEN FIRE BRICK COMPANY, Dept. CP, Mexico, Mo.

When inquiring specify CP 2279 — see handy form pages 2-3

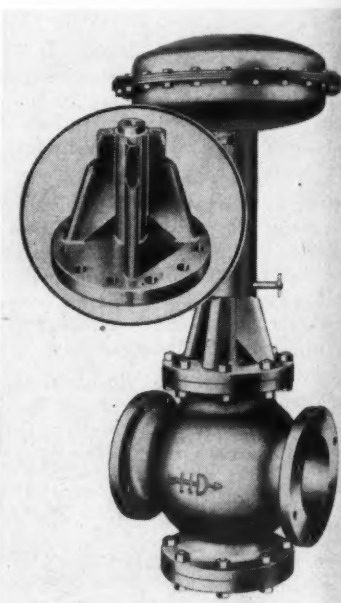
★

### Freezing or 450° Fluids Handled by Vertical Fin Valve Bonnets

*"Chimney draft" cooling lowers 1000° heat on body side of bonnet to 235° at packing box*

**USES** — Vertical type fin radiation bonnet for cooling packing box sections of manufacturer's complete line of diaphragm control valves, in sizes 2" and larger. For use when high temperature fluids are handled.

Manufacturer recommend use of these bonnets where temperature of fluid passing through valve body is above 450° F., or where control valves handle fluids at temperatures below freezing.



Vertical "U" type fin radiation bonnet

**FEATURES** — Natural convection currents plus radiation made possible by this type construction are said to reduce effectively packing box temperatures. Thus, ef-

CHEMICAL PROCESSING Preview

When inquiring specify CP 2278 . . . see information request blank, pgs. 2-3



# Dings

## MAGNETIC DRUMS

fit into most processing lines to produce IRON-FREE products!



Dings Drum Type Magnetic Separators are readily adaptable to most dry materials processing lines for positive, automatic tramp iron removal at normal production volume. Standard sizes and types provide a wide range of installation possibilities; and the simple, rugged basic drum unit is quickly convertible for special plant installations at unusually low cost for specially-built equipment.

Other Dings "High Intensity" units cover the complete field of magnetic separation. Any magnetic separation, purification or concentration job is a job for Dings. Write for information on Dings Separators for your particular applications.

**DINGS MAGNETIC SEPARATOR CO.**  
4731 W. McGoogh Avenue, Milwaukee 14, Wisconsin

# Dings

"HIGH INTENSITY"

"Magnetic Separation Headquarters Since 1899"

When inquiring specify CP 2280 — see handy form pages 2-3

Now Available in standard types

**COOPER Certified Stainless Steel**  
Valves and Fittings

made of any wanted alloy to resist  
Corrosion... Heat... Abrasion...

\* In producing "Certified" valves, Cooper registers the analysis of each heat and stamps each casting with its heat number. When desired a certificate of the analysis is issued which applies to all Stainless Steel valve parts which come in contact with the fluid handled.

Check with your local distributor.

**The COOPER ALLOY FOUNDRY CO.**  
150 BLOY STREET, HILLSIDE, N. J.

Specialists in Corrosion Resisting Stainless Steel  
... For a Quarter of a Century ...

When inquiring specify CP 2281 — see handy form pages 2-3

AUGUST, 1947

## Production

ficient use of proper type grease seal lubricant in grease ring of packing box is claimed.

This efficiency in heat dissipation is said to be obtained regardless of whether control valve is mounted vertically or horizontally, due to large effective area provided by the bonnet. Construction of bonnet eliminates need for any additional structural support, even though valve is installed in horizontal position.

**DESCRIPTION** — With valve installed in normal vertical position, "U" section permits natural draft or chimney effect" which cools packing box section. With common temperature of 1000° on body side of bonnet, vertical fins are said to reduce temperature to 235° at packing box. "U" fins are fabricated integrally with forged bonnet, providing strong structural support for the all-steel superstructure.

The vertically-finned radiation bonnet is said to be equally satisfactory for low temperature applications due to the fact its central section is tubular and of exactly the same section as normally would be used in extension type bonnet. It is also claimed that vertical "U" type fin will not "ice" progressively at extremely low temperatures, or permit freezing of packing box and stem, rendering control value inoperative.

When this bonnet is applied to stainless steel or alloy valves, a stainless steel tube and disc of the specified type is retained by carbon steel housing.

**HAMMEL-DAHL COMPANY**, Dept. CP, 243 Richmond St., Providence 3, R. I.

When inquiring specify CP 2282 — see handy form pages 2-3

1922  
1947

# 25 Years of Achievement

## in WATER COOLING

At its twenty-fifth anniversary the Marley Company expresses its appreciation to world-wide industry for the hearty acceptance of Marley's many practical advancements in water cooling. Through its policy of constant pioneering, the Marley Company seeks to merit the dominant position in the future that it is accorded today.

**MARLEY COOLING TOWERS**

THE MARLEY COMPANY, INC. • KANSAS CITY 15, KANSAS

When inquiring specify CP 2283 — see handy form pages 2-3

Make your factory a much more attractive place to work in

... Remove Smoke, Fumes and Excess Heat with

## Swartwout Ventilation at surprisingly economical cost

Swartwout modern roof ventilation helps you solve one of your most difficult problems—getting and holding competent workers. Better ventilation helps you attract more manpower—reduces accidents and work spoilage, too. All your ventilation needs are covered by Swartwout scientifically designed and sturdily built equipment. Air-mover and Dexter Heat Valve clear much of your heat and smoke-laden air by gravity "open roof" type ventilation. The new powerful Ject-O-Valve supplies concentrated force for unusually hot or

fume producing spots.

● One of the oldest ventilator makers, Swartwout recommends effective combinations to provide most economical effective handling of your various ventilation needs. Write for full information.

**The Swartwout Company**

18539 Euclid Avenue  
Cleveland 12, Ohio



Swartwout Ject-O-Valve

Swartwout Air-mover

Swartwout-Dexter Heat Valve



**Swartwout Controlled Air Circulation**

EQUIPMENT FOR EFFECTIVE ECONOMICAL VENTILATION OF INDUSTRIAL BUILDINGS

When inquiring specify CP 2284 — see handy form pages 2-3

Page 53



*For*  
**EASY HANDLING**  
*and*  
**POSITIVE RESULTS**  
*It should be a*  
*"Sealed-Disc"*  
**FILTER**

Engineered in every detail to provide maximum efficiency on your toughest filtering job — based on 25 years practical experience. Completely enclosed, air-tight, even drip and leak-proof, yet easy to dismantle for cleaning. Compactness and portability assures convenience and speed in handling batch work in different locations.

For a dependable, positive filtration system with low operating and maintenance cost, use an Alsop "Sealed-Disc" Filter, available in Stainless Steel, Nickel Plated Brass, Bronze, etc. Our bulletin No. 745 gives complete details, we'll gladly send you a copy. Alsop Engineering Corporation, 208 Alsop Square, Milldale, Connecticut.

**ALSOP ENGINEERING CORPORATION**  
Filters, Filter Discs, Pumps, Tanks, Mixers, Agitators

When inquiring specify CP 2285 — see handy form pages 2-3

*Production*

**Long-Lift Rayon Belts**  
**Can be Field-Spliced**

*Eliminate belt-to-belt transfers;  
are flexible, easy-troughing*

**USES** — Rayon conveyor belting for heavy-duty, long-lift requirements of limestone plants, quarries, mechanized metal and coal mines.

**FEATURES** — Eliminates troublesome transfers from one belt to another, thus increasing efficiency. In keeping with trend toward longer belts, higher lifts and heavier loads; yet, it retains the conventional, vulcanized field splice, plus flexibility and easy troughing.

Utilizes conventional-type idlers and pulleys. Permits construction modifications to suit varying service conditions.

**DESCRIPTION** — Rayon cord plies provide strength member. Field splices by conventional methods.

**RAYBESTOS-MANHATTAN, Inc.**, Manhattan Rubber Division, Dept. CP, Manheim, Penna.

When inquiring specify CP 2286  
— see handy form pages 2-3

**Stainless Steel**  
**SAN-I-TANKS**

*will simplify your storage and  
processing operations*

Save time, money, increase efficiency — it's easy with San-I-Tanks. The ideal tank for ANY liquid that must be stored or processed. A San-I-Tank is easy to clean, completely sanitary, safe in operation and is engineered for years of trouble free service.

Many special features built right into San-I-Tanks such as self-draining bottoms, all welded construction, highly polished inside and out — and you get all these features at no extra cost. It's easy to see why San-I-Tanks lead the field.

**SPECIAL ENGINEERING SERVICE**  
**for Your Tank Problems - -**

Do you have a tank problem that needs solving? Why not put it up to our engineers. In many cases we can show you how the proper tank installation will save you time and money. There is no obligation for this service, and we can follow through and produce the tanks in our own plant. This means additional savings for you.

**WRITE FOR COMPLETE TANK CATALOG**  
**ILLUSTRATING OUR ENTIRE LINE**

420 Lexington Ave.  
New York City 17, N.Y.  
140 Walker St.  
Atlanta, Georgia

605 Washington Blvd.  
Chicago 6, Illinois  
173 Thirteenth St.  
San Francisco 3, Calif.

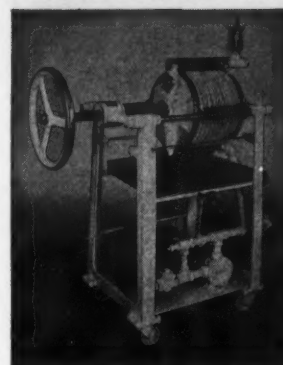
3236 Union Pacific Ave., Los Angeles 23, Calif.

**METAL-GLASS PRODUCTS CO.**  
**BELDING** **Dept. CP** **MICHIGAN**

- BUILT OF 18-8 STAINLESS STEEL
- ALL-WELDED CONSTRUCTION
- RUST-PROOF and ACID RESISTING
- MANY STOCK SIZES

When inquiring specify CP 2287 . . . see information request blank, pgs. 2-3

**ERTEL ASBESTOS DISK EW MODEL FILTERS**  
**ARE AVAILABLE IN SIZES ACCOMODATING**



*Six  
to  
Fifty*

**ERTEL ASBESTOS**  
**FILTER DISKS**

Equipped with electric motor, positive pressure silent pump and manual by-pass pressure control. Catalog 15 illustrates this unit and the entire line of Ertel Liquid Handling Equipment. Write for your copy,



**ERTEL**  
**ENGINEERING**  
CORPORATION  
KINGSTON NEW YORK

New York City Sales Office: 40 West 48th Street, New York 19, N.Y.

ASBESTOS FILTER SHEETS • ASBESTOS SHEET FILTERS  
BOTTLE FILLERS • PORTABLE MIXERS • PLASTIC PUMPS

When inquiring specify CP 2288 — see handy form pages 2-3

**CHEMICAL PROCESS PLANTS**  
**Designed, Engineered, Constructed, Equipped**  
**To Turn Out Your Product Profitably**

If you need facilities quickly, that will operate with utmost economy and efficiency, consult this seasoned staff of chemists—engineers—builders, experienced in every commercially significant process and method. Abreast of latest trends; one responsibility from plan board to the last valve.

Investigate the benefits of handling your next plant project or equipment purchase through this established firm.



CHEMICAL DIVISION • FIDELITY BLDG. • KANSAS CITY, MO.

**J.F. Pritchard & Co.**

ENGINEERS • CONSTRUCTORS • MANUFACTURERS  
for the CHEMICAL, PETROLEUM, GAS & POWER Industries

Offices in Key Cities Coast to Coast

Consult Sweets Files, Chemical Engineering Catalog, Refinery Catalog, ASH & VE Guide for full information.

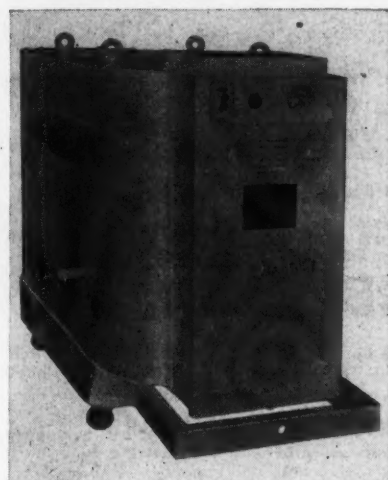
When inquiring specify CP 2289 — see handy form pages 2-3

**CHEMICAL PROCESSING Preview**



## Plastic Heat Unit Operates to 400° F. With Only 15 psi.

*Delivers controlled heat to 550° F., plus-minus 5° under low operating temperatures*



Plastic heating unit

**USES** — Plastic heat unit for delivering quick, controlled heat to 550° F. with a plus or minus 5° under low operating temperatures.

**FEATURES** — Low pressure. War use demanded it operate efficiently despite the jar of 16" guns. No moving parts. No motors, pumps, or gaskets. Heavily insulated and self-contained. Easily accessible controls. Mobility of unit makes stationary anchoring unnecessary. Simple operation.

**DESCRIPTION** — There are three sizes of Vacu-Therm-Generator: 16, 22 and 33 kw capacity. Normal operating temperatures up to 400° F. require only 15 psi. Pressure closely controlled by pressure-stats.

Required floor space: 72" long, 36" wide, 50" high. Unit is installed by connecting it directly with the job through flexible tubes or pipes. It is then plugged in, and the button pushed.

Heat transfer medium is Dowtherm E sealed in heavily welded vacuum chamber. Liquid vaporizes after reaching efficient operating range, transferring heat to operation through flexible tubes or pipes.

**CASTALOY CORPORATION**, Dept. CP, 197 S. Waterman, Detroit 17, Mich.

When inquiring specify CP 2290 — see handy form pages 2-3

★

### Shipping Containers Described in Illustrated Booklet

In-plant assembly and use of wirebound and cleated corrugated boxes is illustrated and described in 12-page booklet. The steps involved in packing various industrial products are outlined. Additional information on materials handling is included.

**GENERAL BOX CO.**, Dept. CP, 500 N. Dearborn St., Chicago, Ill.

When inquiring specify CP 2291 — see handy form pages 2-3

AUGUST, 1947

# What Do You Have TO DRY?

From the answer to this question Link-Belt drying and process engineers would know what problems you may be having. A little study of the types of equipment now employed and the conditions under which it operates would show whether or not you could profit by some alteration of method.

## Better Equipment May Save Time, Lower Costs, Improve Your Product

In setting up a new plant or studying an old one, it pays to give close attention to drying and cooling methods. L-B engineers are unbiased; their experience covers a wide range of products in many industries. Why not consult them, now? Following are three principal types of L-B Dryers:

**ROTO-LOUVRE** (top picture) This dryer and cooler is supreme where large volume, gentle handling, gradual drying and accurate control are necessary. Requires relatively little space as compared to conventional equipment. Can replace your old dryer without expensive alterations. Choice of 8 shell diameters, various lengths.

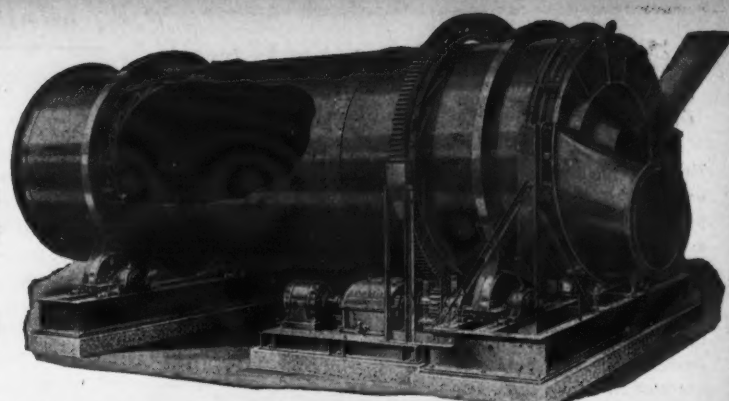
**MULTI-LOUVRE** (center picture) Applies principle of forcing air through a constantly mixing bed of material. The same machine can be used for both drying and cooling. The temperature of the air can be varied during the various stages of drying as desired. Steam for conditioning a material before drying can also be admitted. Requires relatively little space, is economical to operate and especially suited to material not requiring long retention periods.

**"SS"** (lower picture) This type is for the fast removal of surface moisture from coarse, non-absorbent materials, which are subject to forced hot air as they move along a shaker screen.

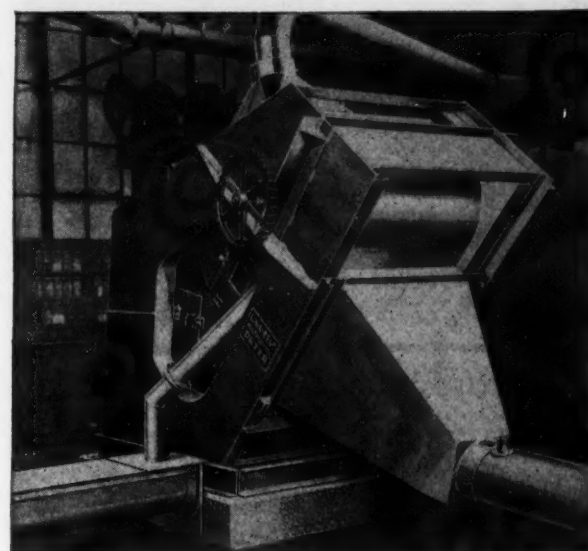
For full details address:

### LINK-BELT COMPANY

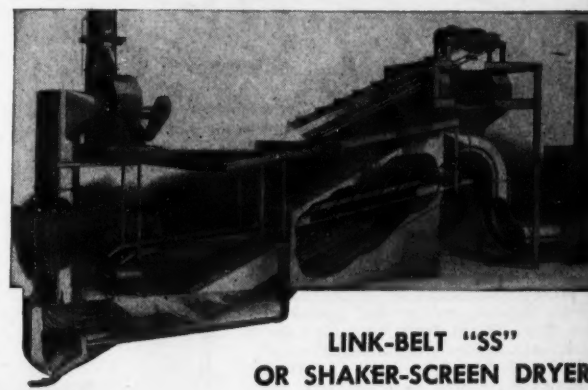
Chicago 9, Indianapolis 6, Philadelphia 40, Atlanta, Dallas 1, Minneapolis 5, San Francisco 24, Los Angeles 33, Seattle 4, Toronto 8. Offices in Principal Cities.



LINK-BELT ROTO-LOUVRE DRYER



LINK-BELT MULTI-LOUVRE DRYER



LINK-BELT "SS" OR SHAKER-SCREEN DRYER

**NOTE:** The illustrations above are not made to a uniform scale. Dryers are available in several standard sizes. Your inquiry involves no obligation.

When inquiring specify CP 2292 . . . see information request blank, pgs. 2-3

## Accident Prevention PLUS Added Strength

The heavy, flanged nosing bar on Hendrick Mitco Shur-Site Treads serves a dual purpose. While making each step highly visible, this deep nosing bar — a patented feature — also provides additional strength at the point of greatest loading. At the same time Shur-Site Treads have a non-slipping, non-clogging surface and all the other streamlined Mitco advantages.



Write for complete information on Hendrick Mitco Shur-Site Treads, Mitco Open Steel Flooring and Mitco Armorgrids.



Perforated Metals  
Perforated Metal Screens  
Architectural Grilles  
Mitco Open Steel Flooring,  
"Shur-Site" Treads and  
Armorgrids

**HENDRICK**  
Manufacturing Company  
32 DUNDAFF STREET, CARBONDALE, PA.  
Sales Offices in Principal Cities

When inquiring specify CP 2293 — see handy form pages 2-3

"We increased the capacity of our 6 Revolving Drum Dryers 63%."

"Gave us better drainage from alum ore smelters and reduced batch-time required with a splendid reduction in fuel cost."

**Faster HEAT**

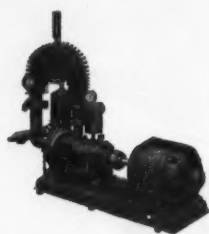
"Our fuel consumption has been reduced nearly 30%."

"Our benefits were two-fold. Drying speed on the 4 drum-dryers was increased 44% with no wet spots—time between drum 'dressings' extended from 3 days to three weeks—boiler capacity was increased with fuel saving of \$200 per month."

"We increased our production 17% with 18% less fuel."

These are typical results from the FASTER and MORE UNIFORM HEAT maintained at dryers, presses, melters, etc. by the Cochrane C-B System of High Pressure Condensate Return. Results like these are only possible in a CLOSED SYSTEM where flash loss and entrained air are completely eliminated from coils and piping.

Write for Publication 3250  
COCHRANE CORPORATION  
3162 N. 17th Street, Phila. 32, Pa.



**COCHRANE CONDENSATE  
C-B BOOSTER  
SYSTEM**

OF HIGH PRESSURE, HIGH TEMPERATURE CONDENSATE RETURN

When inquiring specify CP 2294 — see handy form pages 2-3

## Production

### 72-Page Refrigeration Data Book Tabulates Calcium Chloride for Brine

Tabulations and data on many refrigeration subjects, with particular stress on use and properties of calcium chloride for refrigeration brine, are available in a 72-page manual.

Contents include mechanics of refrigeration, flow of brine in pipe systems, conversion tables, properties and maintenance of calcium chloride brines, theory of corrosion and use of inhibitors, miscellaneous refrigeration data, etc. Numerous tables and charts.

CALCIUM CHLORIDE ASSOCIATION, Dept. CP, 1028 Connecticut Ave. N.W., Washington 6, D.C.

When inquiring specify CP 2295 — see handy form pages 2-3

★

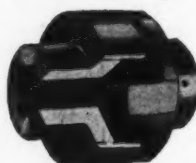
### Blowers for Water Treatment Plants Have Variety of Driving Arrangements

Rotary positive and centrifugal installations for use in sewage disposal plants and water works are described and illustrated in eight-page booklet. Brief description accompanies each illustration and capacities and pressures of blowers are indicated. Includes discussion of diversity of driving arrangements. Bulletin 23-120-B10.

ROOTS CONNERSVILLE BLOWER CORP., Dept. CP, Connerville, Ind.

When inquiring specify CP 2296 — see handy form pages 2-3

### Coupling Cushion Materials to Resist Chemicals, Oils, Heat, etc.



Type "C"  
Pat. & Pats. Pend.

### LOVEJOY L-R Flexible Couplings

Suited to  
Load Conditions

Because load cushions or spiders of Lovejoy L-R Flexible Couplings are made of materials to meet the exact need of every job in the chemical industries, they cut costs, paying for themselves many times over.

Lovejoy L-R Cushion materials are made of either rubber, leather, felt, rubber duck, or brake lining material as needed. Molded Neoprene spiders are available for couplings subjected to the deteriorating effects of chemicals, oils, heat, aging, etc.

WRITE FOR CATALOG AND SELECTOR CHARTS.

**LOVEJOY FLEXIBLE COUPLING COMPANY**

Also Mfrs. of Lovejoy IDEAL Variable Speed Transmissions  
5072 WEST LAKE STREET CHICAGO 44, ILL.

When inquiring specify CP 2297 — see handy form pages 2-3

### Do Your Bins and Hoppers

show those  
**TATTLE  
TALE**

Hammer and  
Sledge Marks?

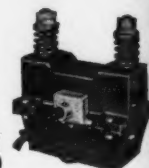


If they do — then its time to apply

**SYNTRON**

"Pulsating Magnet"

**ELECTRIC  
VIBRATORS**



Banged-up and dented bins and hoppers tell a sad story — of work stoppages because valuable labor had to take time out to cuss and pound.

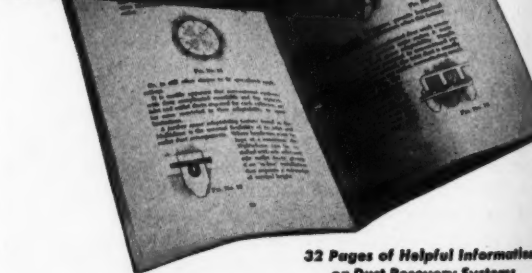
**SYNTRON VIBRATORS** eliminate these conditions — providing free-flowing bins and hoppers — and saving time and money.

Write for illustrated folder.

**SYNTRON CO.,** 110 Lexington, Homer City, Pa.

When inquiring specify CP 2298 — see handy form pages 2-3

### FREE! New MULTICLONE Booklet



32 Pages of Helpful Information  
on Dust Recovery Systems

If you are now using dust or fly ash recovery equipment in your plant—or are planning installation of such equipment now or later—you will find this new Multiclone booklet full of helpful information. Illustrations and diagrams outline basic principles of dust recovery and how to utilize them for maximum efficiency...how to simplify your

installations...how to conserve valuable plant space...how to get high recovery over a wide range of particle sizes, etc. A copy of this booklet should be in your files for reference and assistance in dust recovery applications. A free copy will gladly be sent you on request. Write today while supplies are adequate.



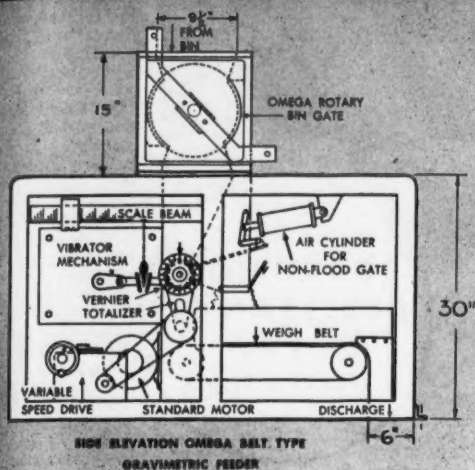
**WESTERN  
Precipitation  
CORPORATION**  
ENGINEERS, DESIGNERS & MANUFACTURERS OF EQUIPMENT FOR  
COLLECTION OF DUSTED MATERIALS FROM GASES & LIQUIDS  
Main Office: 1023 WEST NINTH STREET, LOS ANGELES 15, CALIFORNIA  
CHRYSLER BLDG., NEW YORK 17 • 110 SALLE ST. BLDG., 1 N. La SALLE ST.,  
CHICAGO 2 • HOBART BUILDING, SAN FRANCISCO 4, CALIFORNIA  
PRECIPITATION CO. OF CANADA, LTD., DOMINION SQ. BLDG., MONTREAL

When inquiring specify CP 2299 — see handy form pages 2-3

CHEMICAL PROCESSING Preview



## OMEGA BELT TYPE GRAVIMETRIC FEEDER



Omega Belt Type Gravimetric Feeders are fully automatic, simple in design, and reliable. Feeding rate — accurate within 2% — is infinitely adjustable. Handle any dry chemicals and materials. Capacity 10 to 10,000 lbs./hr. Write for Bulletin.

### OMEGA MACHINE CO.

(Division of Builders Iron Foundry)  
41 CODDING STREET, PROVIDENCE 1, R. I.

When inquiring specify CP 2300 — see handy form pages 2-3

## LENAPE SPECIAL MANWAYS

### SIMPLIFY DESIGN AND KEEP COSTS LOW

When access openings of special type or special material are indicated, you may minimize both design time and construction cost by referring your requirements to Lenape.

We are regularly producing special constructions for chemical, refinery, food, cosmetic, beverage, pharmaceutical, and similar applications, in addition to our standard line.

Our recommendations as to type and material will simplify your design, procurement, and cost problems in the planning and initial estimate stages.



Type SR 18" Manway and swing cover of #347 Stainless with mild steel trim.

Quotations will be given our immediate attention—Bulletin 4-61 and current price schedule M-47 will be sent upon request.

**LENAPE**  
HYDRAULIC PRESSING  
AND FORGING CO.

LENAPE HYDRAULIC PRESSING & FORGING CO.  
DEPT. 100 WEST CHESTER, PA.  
SEE MAN PRODUCTS

When inquiring specify CP 2301 — see handy form pages 2-3

AUGUST, 1947

## Production

### Prints, Dry-Develops Positives: 25 Seconds

"Desk job" printmaker handles work to 42" wide, any length

USES — For quickly printing and dry-developing positive copies of drawn, typed, printed or photographic material.

For reproducing standard-sized engineering drawings, roll-length accounting reports, file cards, form letters, photographic film positives and other translucent originals, either in black or colors, on paper, cloth, foil, film or plastic.

FEATURES — Use of translucent originals eliminates photocopying,



Printer and positive dry developer

delivering prints "up to 65 times as fast." Uses no inks or chemical baths.

DESCRIPTION — Reproduces in 25 seconds. Material is typed, drawn or printed on translucent, rather than opaque, paper or card stock. In photographic work, translucent film positives can be made for this purpose from any negative.

Reproduces in black, blue, red, sepia or yellow; or in 5-color transparent film overlays or true-color copies of Ansco or Kodachrome transparencies. 15 types of prints are possible.

Accommodates materials up to 42" wide, any length. Printing speeds adjustable to 10 fpm; reverse, 5 fpm. Developing speed, constant 5 fpm. Impeller pump automatically drives 20% solution of baume ammonia from storage bottle to evaporation tray. Aluminum-steel construction.

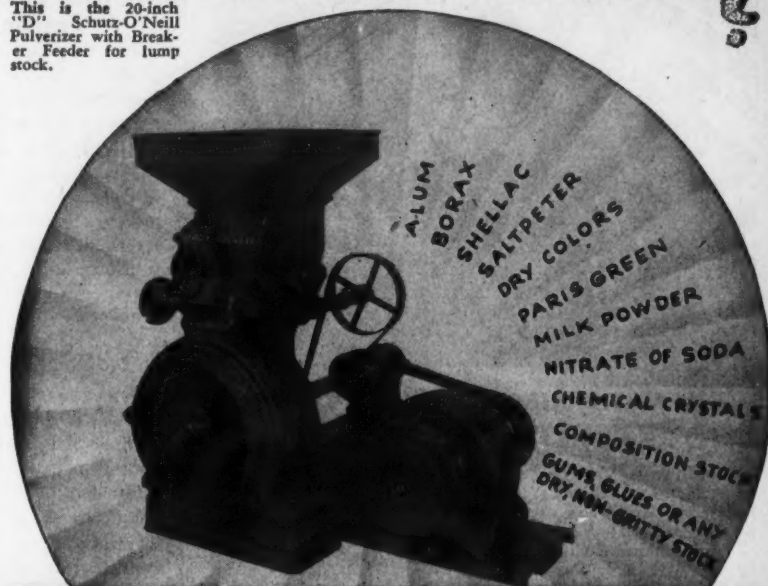
OZALID, Division of General Aniline and Film Corporation, Dept. CP, Johnson City, N. Y.

When inquiring specify CP 2302 — see handy form pages 2-3

## WHAT DO YOU

# PULVERIZE?

This is the 20-inch "D" Schutz-O'Neill Pulverizer with Breaker Feeder for lump stock.



You Can do it *Finer. Faster and Better*

with the

## SCHUTZ-O'NEILL PULVERIZER

The Schutz-O'Neill Pulverizer is a centrifugal air force impact pulverizer for continuous or batch operation. For extremely fine grinding and uniformity, the principle of centrifugal impact when carried by the air stream has never been surpassed. The product is floated off on air — there is no screen to clog or wear out. Thousands of Schutz-O'Neill Pulverizers have proven their sturdiness, long life, low power consumption, high output and ease of operation. With a range of sizes in several styles, any dry, grindable stock can be efficiently pulverized.

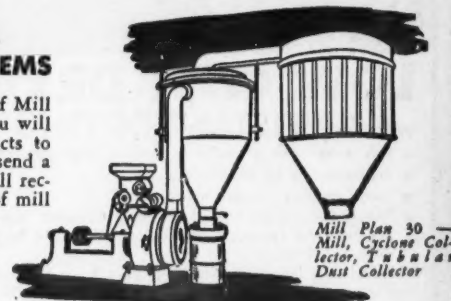


12" MILL for PILOT PLANT or LABORATORY

For coarse, medium or fine grinding. Cyclone Collector and Tubular Dust Collector in one compact unit. Capacity 20 to 150 lbs. Ball bearing, requires only 2 to 3 H.P.

### CONSULT US ON YOUR PULVERIZING PROBLEMS

Schutz-O'Neill has a great variety of Mill Plans for different purposes. If you will write us your requirements, products to be pulverized, output desired, and send a sample, Schutz-O'Neill engineers will recommend the correct size and type of mill and the most efficient Mill plan for your use. This in no way obligates you. Literature on request.

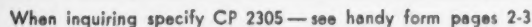
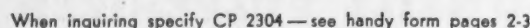


Mill Plan 30 — Mill, Cyclone Collector, Tubular Dust Collector

Some territories are open for Sales Engineers on Schutz-O'Neill products. Write stating qualifications.

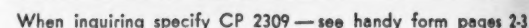
**ESTABLISHED 1893**  
**SCHUTZ-O'NEILL CO.** DIVISION OF PARTEN MACHINERY CO.  
PULVERIZERS • BREAKER MILLS • ROLLER MILLS • RUMM MILLS • HAMMER MILLS  
303 SIXTH AVENUE SOUTH • MINNEAPOLIS 15, MINNESOTA

When inquiring specify CP 2303 — see handy form pages 2-3



When inquiring specify CP 2307 — see handy form pages 2-3

When inquiring specify CP 2308 — see handy form pages 2-3



When inquiring specify CP 2310—see handy form pages 2-3



## Hand Protection and Extra Work-Ease



### Neoprene Stanzails with astonishing new non-slip finish

It took hundreds of experiments to perfect the new positive-grip finish on Stanzails — but it holds slippery objects as if dry, giving workers confidence and speed. Durable safety, too, for DuPont neoprene, as processed by Pioneer, lasts in oils, acids, many times longer than rubber — low cost per hour, prevents costly injuries. For better work and economy, write today for complete Stanzail catalog.

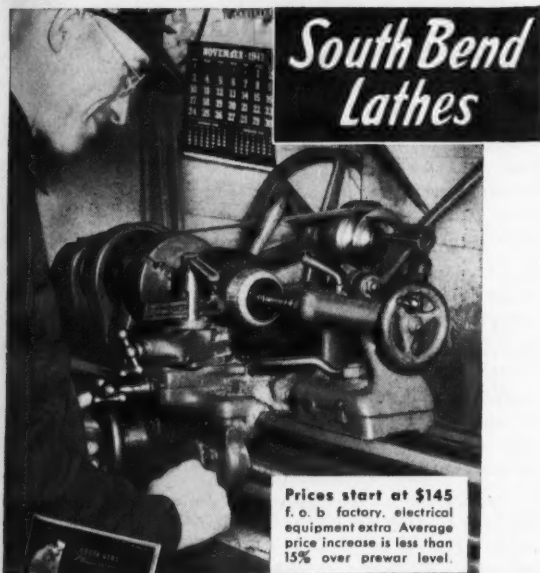


Synthetic Rubber Division  
**THE PIONEER RUBBER COMPANY**  
239 Tiffin Rd., Willard, Ohio, U.S.A.  
Los Angeles

OVER 25 YEARS OF QUALITY GLOVE MAKING

When inquiring specify CP 2311 — see handy form pages 2-3

## COST-CUTTING ACCURACY



### South Bend Lathes

Prices start at \$145  
f.o.b. factory, electrical  
equipment extra. Average  
price increase is less than  
15% over prewar level.

The dependable accuracy of South Bend Lathes produces better close-tolerance machining. Higher output with fewer rejections is often obtained. Wherever precision is important — on both toolroom and production work — compare the advantages of South Bend Lathes.

**SOUTH BEND LATHE WORKS**  
Building Better Lathes Since 1906  
439 E. MADISON ST., SOUTH BEND 22, IND.

WRITE FOR  
CATALOG 100-F  
Describes 9" to 16"  
swing lathes. See your  
local distributor —  
prompt deliveries — time  
payments, if desired.

When inquiring specify CP 2312 — see handy form pages 2-3

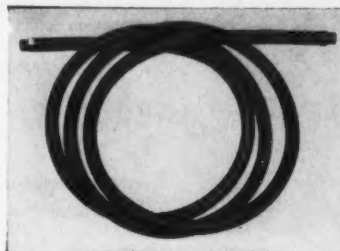
AUGUST, 1947

## Production

### Flexible Conductor Has Water-Cooled Core

*Transmits high power, high  
frequency current*

USES — Water-cooled, flexible conductor for transmitting high power,



Flexible conductor for high power,  
high frequency current

high frequency current. Particularly adaptable to high frequency heating equipment and similar applications.

FEATURES — Minimum losses at high power: manufacturer states power losses are lower than for conventional  $\frac{1}{4}$ " copper tube. Flexibility permits freedom of motion between components.

DESCRIPTION — Consists of brass, water-tight, convoluted inner-core with an outer-braid conductor. A specially compounded high frequency flexible insulation is extruded over the outer-braid.

Insulation described as flexible and tough with excellent dielectric properties, chemical inertness and water resistance.

TITEFLEX, Inc., Dept. CP, 600 Frelinghuysen Ave., Newark 5, N. J.

When inquiring specify CP 2313  
— see handy form pages 2-3

★

### Bulletin Describes Water Con- ditioning Equipment

Revised bulletin contains 16 pages of illustrations and descriptive material on carbonaceous zeolite water conditioning equipment. Seven typical installations are illustrated and a number of flow diagrams are included. Technical data includes curves, tables and chemical reactions. Publication 4021.

COCHRANE CORP., Dept. CP, 17th St. & Allegheny Ave., Philadelphia 32, Pa.

When inquiring specify CP 2314  
— see handy form pages 2-3

## Don't hang your plant out to dry before painting



### Use Rubberized Dampcoat Enamel

You can paint wet walls and equipment with this modern rubber-base paint and forget all about dampness. No waiting for good drying days, or lost time while equipment is drying off. Just go ahead and paint whenever and wherever it's needed. Because of the high Rubber content, you get extra protection and adaptability that ordinary paints cannot match. Investigate this superior maintenance paint that is always at its best under adverse conditions—where it counts the most!

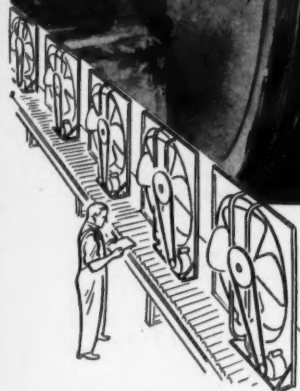
- Safely Paints wet walls or surfaces
- Dries in 1 hour—tough and durable
- Resists acid and alkali fumes
- Resists strong cleaners again and again
- Stays White on hot pipes up to 250°F.
- For inside or outside of water tanks
- 250 to 400 square feet per gallon
- White, Black, Aluminum and 10 other beautiful colors



*The*  
**WILBUR & WILLIAMS**  
COMPANY

When inquiring specify CP 2315 — see handy form pages 2-3

# One of a Kind



Powerful Texrope drive specially engineered for a large mill. This main driver sheave is 7 ft in diameter, has 30 grooves, transmits 1400 hp!

## ...or One of A THOUSAND!

### EVERY TEXROPE DRIVE IS ENGINEERED FOR ITS JOB

YOU GET sound recommendations from Allis-Chalmers — recommendations backed by the greatest V-belt engineering talent and experience in the business.

Allis-Chalmers originated the Multiple V-belt drive 22 years ago. Since then, Texrope engineers have designed many thousands of drives, ranging from fractional horsepower units for manufacturers of small

compressors, pumps or washing machines — to the largest V-belt drives ever installed. They've served: Textile, Mining, Metal working, Petroleum, Chemical . . . in fact, every major industry.

Take advantage of this vast research and experience. Bring your V-belt problems to headquarters — for the best in engineering talent — for the most complete line of V-belt equipment made.

Service is as close as your nearest Allis-Chalmers dealer or office. ALLIS-CHALMERS, MILWAUKEE 1, WISCONSIN.

A 2239

Refer to Sweet's Catalog

# ALLIS-CHALMERS

One of the Big 3 in Electric Power Equipment — Biggest of All in Range of Industrial Products



When inquiring specify CP 2316 . . . see information request blank, pgs. 2-3

### TEXROPE .. Greatest Name in V-Belt Drives



"Super 7" V-BELTS  
Five Types — Sizes  
to suit every power  
transmission job.

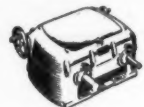


Textsteel, Texdrive,  
"Magic-Grip"  
— sheaves in a full  
range of sizes,  
grooves.



"Vari-Pitch"  
SHEAVES

Exact variations in  
speed, stationary or  
motion control.



SPEED  
CHANGERS

Speed variations up  
to 375% at the turn  
of a crank.



### ENGINEERING

Finest V-Belt engi-  
neering talent in the  
world—at your call.

TEXROPE "Super 7" V-Belts result from the cooperative research of two great companies — Allis-Chalmers and B. F. Goodrich. They are sold only by A-C.

### Production

### Fast Cycles or Outgassing Handled by Coating Unit

Attains  $5 \times 10^{-6}$  mm. dry-air pressure from atmospheric pressures in 9 min. with 18" jar

USES — Vacuum evaporator for depositing magnesium fluoride on optics. For preparing evaporated metal films, or for other applications requiring low-pressure bell jar equipment.

FEATURES — Unit has ample pumping capacity for fast cycles or handling large quantities of outgassing from materials being coated.

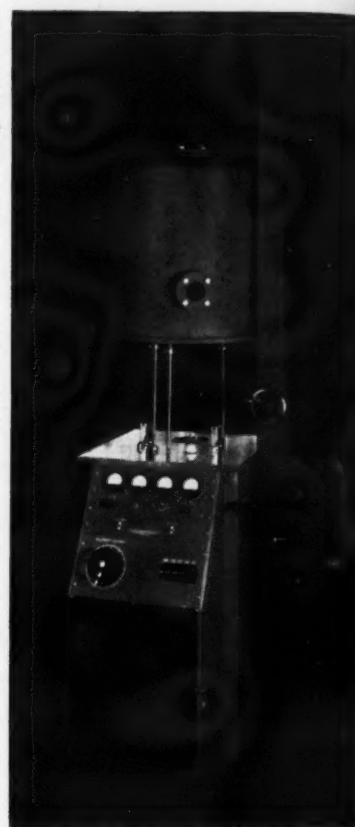
High voltage can be turned on only while bell jar is evacuated. Uses either the standard Pyrex 18"-diameter type jar or a larger type of 24"-diameter, all-steel construction for greater coating capacity. This latter type has two conveniently located in sight ports for viewing work-in-process.

Proper counter-balancing provides automatic, slow rise of jar when vacuum is released.

DESCRIPTION — Type 3102 coating unit. Medium-size. Includes continuously-operating, 6", high-speed diffusion pump and large, combined roughing and backing pump. Diffusion pump is backed by small mechanical pump during roughing cycle. A dry-air pressure of  $5 \times 10^{-3}$  mm. Hg. can be attained after 9 min. from atmospheric pressures on clean, empty 18" glass bell jar.

Chromium-plated base plate has ample feed-through connections. Standard machine includes two sets of filament posts; 110-volt power supply for resistance heaters or other purposes; high-capacity, high-voltage discharge unit; bellows turning mechanism. Also two auxiliary 110-volt feed-throughs (unconnected), which may be used for thermocouple feed-throughs or replaced by adapter seals for introducing special gases, cooling water, etc., into jar.

Only one set of filament posts is wired, but controls and space for an additional transformer will permit dual filament operation. Both sets of filament posts and the 110-volt circuit may be regulated by a single variable transformer, through selector switches. Vacuum safety switch



Optical coating unit



in base plate is incorporated in high voltage discharge circuit.

Vacuum gauges are controlled from removable unit panel. Single thermocouple circuit with selector switch operates two gauges, while a non-amplified ionization gauge circuit controls untrapped type 507 gauge. This circuit reads pressures from 5 microns to  $1 \times 10^{-5}$  mm. Hg.

Operation of ionization gauge is protected by safety relay which prevents energizing filament unless power supply is reset to zero. Circuit-breaker type power switches. Separately fused, 110-volt utility plug on right side of panel.

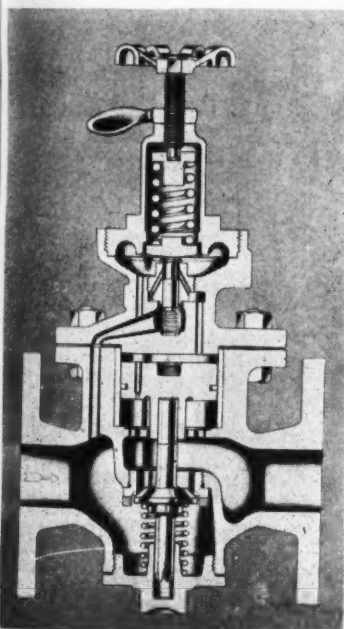
Hoist, constructed of heavy steel channels, can handle either type bell jar and is counter-balanced, operated by hand crank. All equipment except large mechanical pump is within machine frame, which is finished in gray wrinkle paint. Two optional manifold connections give latitude in space requirements. Regularly furnished for 54 x 69" floor area.

NATIONAL RESEARCH CORPORATION, Vacuum Engineering Division, Dept. CP, 110 Brookline Ave., Boston 15, Mass.

When inquiring specify CP 2317 — see handy form pages 2-3

## Overflow Valve Maintains Constant Inlet Pressures

*Offers quick action despite sudden pressure variations*



Throttling type unloading valve

**USES** — A throttling type unloading valve for use with steam, air or gas. Unit is applicable wherever a throttling type regulating valve is required to maintain a constant inlet pressure by relieving the excess to a lower pressure system.

**FEATURES** — Smooth throttling control during entire cycle of operation, plus quick action under sudden pressure variations.

**DESCRIPTION** — Class UL. Constructed with high pressure bronze body, renewable wearing parts, hard surfaced seat ring, hardened stainless

steel main and controlling valves, bronze piston, corrosion-resistant piston rings, phosphur bronze diaphragm.

Available in sizes from 1/2 to 4", for inlet pressures from 25 to 300 psi., inlet temperature up to 550° F. and pressure difference not less than 15 psi.

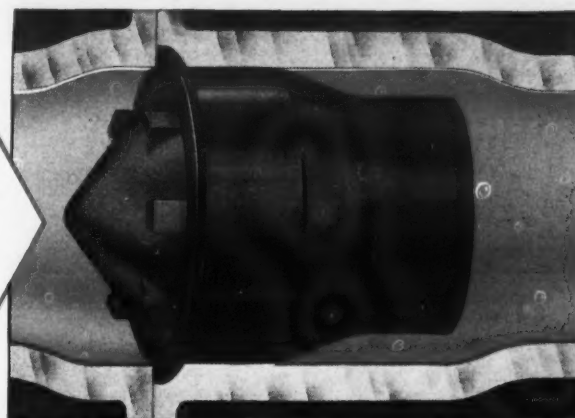
LESLIE COMPANY, Dept. CP, 65 Delafield Ave., Lyndhurst, N. J.

When inquiring specify CP 2318 — see handy form pages 2-3

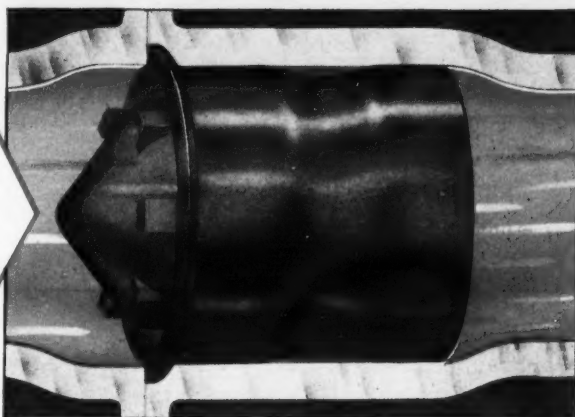
AUGUST, 1947

# SIMPLEST, TROUBLE-FREE CHECK VALVE EVER DEVELOPED

*Shockless Closing*  
with positive  
**BUBBLE-TIGHT SHUTOFF**

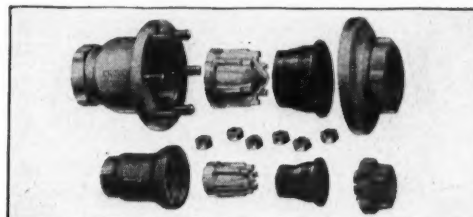


*Freely Expands*  
to OPEN on LOW  
**PRESSURE DIFFERENTIAL**



## CHECK THESE ADVANTAGES

- ✓ Extreme Flow Capacity
- ✓ Operates on Low Differential
- ✓ Positive Bubble-tight Shutoff
- ✓ Non-Sticking, Non-Pounding
- ✓ Self Compensates for Wear
- ✓ Closes Prior to Back Flow
- ✓ Shockless Closing
- ✓ Absorbs Pressure Impulses
- ✓ Non-Chattering
- ✓ Smooth Sensitive Response
- ✓ Self Flushing Seat
- ✓ Resilient Erosion Resistance



Designed to overcome the many difficulties commonly encountered in ordinary Check Valves, Grove CHEXFLO represents the simplest, trouble-free Check Valve ever developed for handling air, water, oil and other fluids at temperatures to 150° F. Embodying no metallic operating parts to stick, slam, chatter or leak, the CHEXFLO employs a flexible synthetic rubber tube which expands to open—contracts to close on low pressure differential. The degree to which it opens or closes is in direct ratio to flow volume. The resiliency of the flexible tube completely absorbs any and all shock impulses. Investigate fully today, write for Bulletin 610 A.

GROVE REGULATOR COMPANY  
65th & Hollis St., Oakland 8, California

# GROVE CHEXFLO CHECK VALVES

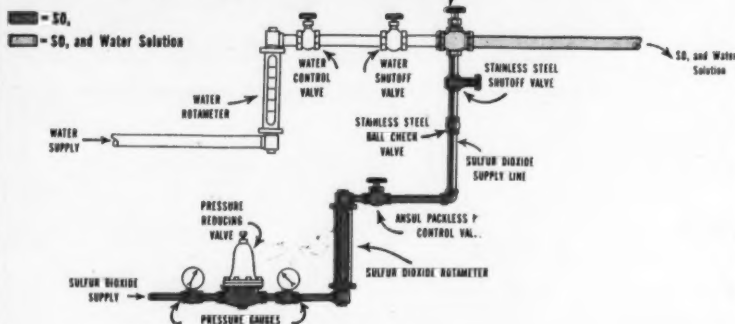
When inquiring specify CP 2319 . . . see information request blank, pgs. 2-3

## A SIMPLE WAY TO MAINTAIN A

Constant  $\text{SO}_2$  Concentration  
DEVELOPED BY  
ANSUL TECHNICAL STAFF

### CONTINUOUS SULFUR DIOXIDE and WATER MIXING SYSTEM

ANSUL CHEMICAL CO., MARINETTE, WIS.



● Pre-mixing of water and liquid  $\text{SO}_2$ ... accomplished through the use of meters and a single, Ansul-designed valve installed at the juncture of the water and  $\text{SO}_2$  supply lines... permits constant control of the  $\text{H}_2\text{SO}_3$  at any desired concentration.

If you have need for an  $\text{SO}_2$  mixing system for a specific application in your business, Ansul technicians will plan one for you.



### PHYSICAL PROPERTIES

Chemical formula.....	$\text{SO}_2$
Molecular weight.....	64.06
Color (gas and liquid).....	Colorless
Odor.....	Characteristic, pungent
Melting point.....	$-103.9^\circ \text{F.} (-75.5^\circ \text{C.})$
Boiling point.....	$14.0^\circ \text{F.} (-10.0^\circ \text{C.})$
Density of liquid at $80^\circ \text{F.}$ .....	(85.03 lbs. per cu. ft.)
Specific gravity at $80^\circ \text{F.}$ .....	1.363
Density of gas at $0^\circ \text{C.}$ and 760 mm.....	2.9267 grams per liter (0.1827 lb. per cu. ft.)
Critical temperature.....	$314.82^\circ \text{F.} (157.12^\circ \text{C.})$
Critical pressure.....	1141.5 lbs. per sq. in. abs.
Solubility.....	Soluble in water
Purity.....	99.9+% (by wt.) $\text{SO}_2$ ( $\text{H}_2\text{O}$ less than 0.01%)

®REG. U. S. PAT. OFF.



Send for your copy of "Liquid Sulfur Dioxide"—a treatise on the properties, characteristics, and industrial uses of Liquid Sulfur Dioxide—written by the Ansul Technical Staff.

**ANSUL CHEMICAL COMPANY**  
INDUSTRIAL CHEMICALS DIVISION, MARINETTE, WIS.  
60 E. 42nd St., New York — 535 Chestnut St., Philadelphia

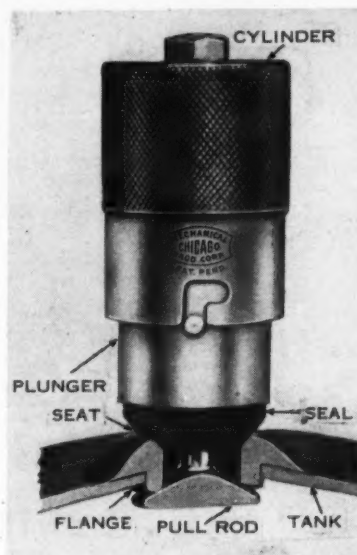
When inquiring specify CP 2320 — see handy form pages 2-3

## Production

### Non-Screwing Plug Tests to 100 psi

Low pressure unit fits all plain  
or threaded tank openings

USES — Self-sealing, low pressure  
test plugs for sealing openings in  
tanks, boilers and other receptacles



Low pressure test plug

which require testing by internal  
pressure.

For hydrostatic or air testing.

FEATURES — Adaptable to any  
type spudded, flanged or drawn  
openings, either plain or threaded.  
Eliminate production and repair  
losses experienced in removing  
"frozen" plugs.

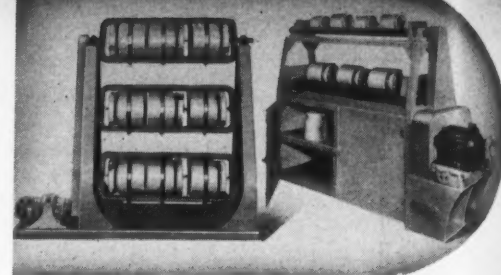
DESCRIPTION — For pressures up  
to 100 psi. Illustration shows bay-  
onet-lock construction which facili-  
tates removal as applied, in this case,  
to a flanged opening.

Available for all standard pipe  
openings, from  $\frac{1}{8}$  to 4" size.  $\frac{3}{4}$   
to 2" openings available from stock.

Plunger pin is engaged into bay-  
onet-lock slot in cylinder, permitting  
clearance for pull rod head to be  
inserted into tank opening. Slight  
down pressure, forcing seal against  
seat, permits releasing bayonet-  
lock. Plug is now ready for use.  
Compression spring retains plug in  
place.

MECHANICAL PRODUCTS CORPO-  
RATION, Dept. CP, 168 N. Ogden Ave.,  
Chicago 7, Ill.

When inquiring specify CP 2321  
— see handy form pages 2-3



## ABBÉ JAR MILLS and JAR ROLLING MACHINES

Here's a line of apparatus that per-  
mits processing multiple batches  
of wet or dry materials in any  
quantity from a pint to 60 gal.  
per hour. They produce perfect  
product uniformity in minimum  
time at lowest operating cost.  
Abbe Jar Mills and Jar Rolling  
Machines are available with single  
or multiple jars, arranged in one,  
two or more frames or tiers to  
handle as many as 18 jars at one  
time. They're truly versatile in  
performance.

for Batch  
PULVERIZING  
GRINDING  
MIXING  
COMPOUNDING  
BLENDING  
EXTRACTING

Write for  
Catalog 63



**ABBÉ ENGINEERING CO.**  
MILLS • BLENDERS • MIXERS • SIFTERS  
46 CHURCH STREET • NEW YORK 7, N. Y.

When inquiring specify CP 2322 — see handy form pages 2-3

# PREVENT ACCIDENTS

by using **AMERICAN  
COUNTER-TRED MATTING**

A durable rubber and cord matting with a resilient non-slip  
surface for use in wet or slippery areas. Provides safety  
underfoot. Ridged bottom affords aeration and drainage.  
Easily handled for cleaning. Keeps the feet dry.  $\frac{3}{8}$ " thick.  
24" wide, any length.

—also—

**AMERIFLEX HARDWOOD LINK MATTING**  
**TUF-TRED TIRE FABRIC MATTING**  
**NEO-CORD OIL AND GREASE RESISTANT**  
**COUNTER-TRED MATTING**  
**EZY-RUG RUBBER LINK MATTING**  
**PERFORATED CORRUGATED MATTING**

**WANTED!** Distributors and direct factory representatives

For prices and folder, "A Mat for Every Purpose" for  
promoting safety and sanitation and reducing fatigue—  
write

**AMERICAN MAT CORPORATION**  
"America's Largest Matting Specialists"  
1798 Adams St., TOLEDO 2, OHIO

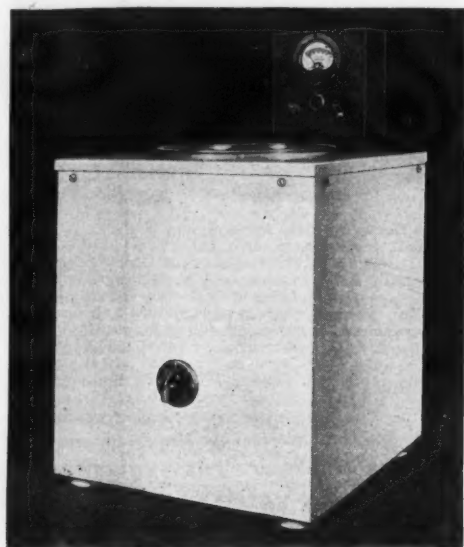
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CHEMICAL PROCESSING Preview



## Shows Heat Reaction of Oils, Resins, Chemical Compounds

Constant temperature tank has 6 qt. beaker, supplies heat to 600° F.; also built to order



Constant temperature tank

**USES** — Constant temperature tank for general purpose laboratory and research work. For determining reaction from heat on oils, resins, waxes, chemical compounds. Useful for plastic melting and dip coating, as a water, oil or prestone bath, or in direct heating of stainless steel beakers. For experimental compounding.

**FEATURES** — Permits running of small batches, with resulting economy in materials and heat. Automatic, constant temperature control; hence, requires little attention. Easily interchanged beakers permit introduction of new material with no loss of time.

Concentrates heat where required, with little waste. A pre-melting compartment, separating newly added from completely heated material, is provided by removable stainless steel partition.

**DESCRIPTION** — Available in two models: CT-1 and 2. Latter is constructed to customer's specifications. CT-1 beaker holds 6 qts., supplies controlled heat to 600° F. Ample rockwool insulation. Heating compartment beaker fits within cast aluminum heat distributor. Automatic electric cartridge-type heating element. Power consumption, 960 watts; 110 AC voltage. Bi-metallic thermostat control maintains plus or minus 2° F. temperature differential with aid of pilot lamp indicator.

Temperature of heat distributor indicated by millivoltmeter calibrated 0 to 600° F., and thermocouple. With 6 qts. of water, the rate of temperature increase is 70 to 200° F. in 1 hr. Baked wrinkle enamel finish. Outer box dimensions, 15 x 15 x 14" high. Height to top of control panel, 19". Shipping weight, 90 lbs.

LABORATORY SPECIALTIES, Inc., Dept. CP, 144 S. Wabash St., Wabash, Ind.

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AUGUST, 1947


## INSURE AGAINST SURFACE FAILURES!



**Amercoat**  
PLASTIC COATINGS



**Abrasion-resistant**  
Ideal for concrete and brick floors, walls, ceilings. Easily cleaned, chemically resistant. Available in 12 colors.



**Alkali-resistant**  
Unaffected by alkalis — extensively used as a lining for tank cars for transporting concentrated caustic soda.



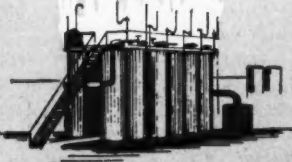
**Petroleum-resistant**  
Positive protection against sour crude, gasolines, oils and greases—used throughout the industry for sour crude tanks, disposal tubing, submerged pumps and motors, line pipe, etc.



**Weather-resistant**  
Long-lasting service on exposed surfaces reduces maintenance cost and prolongs structure life.



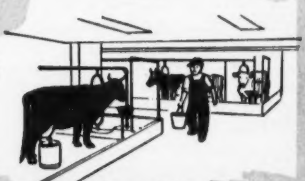
**Acid-resistant**  
Protects against corrosion by nearly all chemicals and fumes except concentrated oxidizing acids.



**Salt Water-resistant**  
Impervious to salt solutions. Lasts up to 4 years in sea water.



**Non-contaminative**  
Tasteless, odorless and non-toxic — effectively used for lining food product tanks and containers.



**Sanitary**  
Approximates glass in resisting the harboring of bacteria, mold and fungi. Non-porous, non-absorptive. Reduces maintenance costs to a minimum.

### Better protection for metal, concrete and wood surfaces

Amercoat has many outstanding advantages. Here is a tough, long-lasting coating that gives you many of the features of rubber, glass and other corrosion-resistant materials, at only a fraction of their cost. It is applied cold, easily and quickly, with either spray or brush—dries to touch in a few minutes. No baking is required. Surface is smooth and glossy—lasting many times as long as ordinary coatings. It is non-brittle and abrasion-resistant. After long service, repairs can be made in a few minutes, making it unnecessary to tie up costly equipment or maintain stand-by units. Amercoat can save you money in two ways—

1. Cut maintenance costs of machinery, equipment and buildings.
2. Cut original cost of equipment by using less expensive materials—protected with Amercoat.

Write for descriptive literature and name of supplier near you.

**IMMEDIATE DELIVERY**

**AMERCOAT DIVISION, American Pipe & Construction Company**

Department 5H, P. O. Box 3428, Terminal Annex, Los Angeles 54, California

When inquiring specify CP 2325 . . . see information request blank, pgs. 2-3

# AMIOCA

**100%  
AMYLOPECTIN  
STARCH**

PASTE AND FILM  
PROPERTIES

Clear  
Cohesive  
Non-jelling  
Non-skinning  
Highly Viscous  
Adhesive

**UNIQUE IN**

ABILITY OF PASTES TO RECOVER  
ORIGINAL PROPERTIES AFTER FREEZING  
EASE OF CONVERSION BY  
AMYLOLYTIC ENZYMES  
REMOISTENING PROPERTIES  
OF ITS DRIED FILMS  
COMMERCIALY AVAILABLE  
IN LARGE QUANTITIES

**AGAIN AVAILABLE:** AMIOCA is the new commercial starch obtained from domestically bred waxy maize. The unique properties of pure AMIOCA and its modifications — as successfully developed by National Starch Products — should be studied by the food, paper and textile fields. These properties should be compared with tapioca, potato and other tuber starches; and with natural gums such as arabic, tragacanth, karaya and other thickeners.

**DESCRIPTION:** AMIOCA is unique among starches because it consists entirely of amylopectin. It is generally believed to be a more or less branched or non-linear polymer of glucose. Its molecules, being highly hydrated and unable to readily associate, give rise to highly viscous, clear, cohesive pastes free from any tendency to thicken or jell on ageing.

Other commercial starches such as corn, tapioca, wheat, potato, etc., contain two components — usually 20-30% amylose in addition to amylopectin. Amylose is believed to be a linear or straight chain polymer of glucose. In pastes, its molecules tend to associate with each other and with the amylopectin molecules. This tendency leads to thickening, jelling and increased opacity.

AMIOCA comes as a white powder or in pearl form resembling ordinary corn starch. It gelatinizes sharply, starting at 70°C and proceeding over a range of only 8°C. It has a peak hot viscosity of approximately 4,000 centipoises in 20 parts of water; and 15,000 centipoises in 10 parts of water. AMIOCA modifications range from materials which require from 20 or more parts of water to those requiring less than 1 part of water at a comparable viscosity.

**POSSIBLE APPLICATIONS:** AMIOCA and AMIOCA modifications offer *textile sizings* which are non-jelling with good adhesive and film forming properties and with excellent rinsability . . . *textile finishes* with clear, glossy films, and resistance to iron-browning . . . *grease-proof tub sizings* with non-jelling properties that permit high solids application . . . *paper beater sizings* that are non-jelling and permit a high degree of hydration . . . *paper coatings* with higher solids and greater binding power at a given viscosity . . . *foods* with modified jelling properties, clarity and freedom from cereal taste . . . *frozen foods* with ability to recover their original properties after defrosting . . . *drum dried* or *dehydrated* foods with better stability and clarity.

**WE'RE READY** to match our research and laboratory efforts with yours in further exploration of Amioca starch applications to your products. Address: National Starch Products, Research and Development Labs., 270 Madison Avenue, New York City. Plants: Dunellen, N. J., Chicago, Indianapolis and San Francisco. In Canada: Meredith, Simmons & Co., Ltd., Toronto and Montreal. In Holland: Nationale Zetmeelindustrie, N. V. Veendam.

**National**  
STARCH PRODUCTS

STARCHES — AND SPECIALTIES WITH EASILY DEMONSTRATED SUPERIORITY

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## Production

### Clean, Inspect Vats In 1-Piece Neoprene Suit

*Double-coated material resists  
heavy acids, caustics, oils*

**USES** — One-piece neoprene suit for protection against splashes and sprays of heavy acids, caustics and oils.



One-piece neoprene  
suit

For inspecting and repairing acid equipment and pipe lines; for cleaning tanks and vats.

**DESCRIPTION** — Manufactured of double-coated neoprene material. Fully vulcanized at all seams. Small, medium and large sizes.

Corduroy-tipped stand-up collar. Full-length, heavy-duty zipper with overlapping fly front which fastens securely with snap buttons. Gum neoprene cuffs, wrist-fitting, fit inside of sleeves. Reinforced at bottom inside of trouser legs.

INDUSTRIAL PRODUCTS COMPANY,  
Dept. CP, 2834 N. Fourth St., Philadelphia 33, Pa.

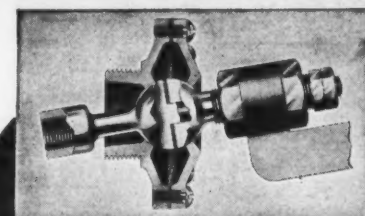
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### Pointers on Selecting Industrial Firehose

Practical suggestions for the selection of firehose are offered in 6 page folder that emphasizes the importance of easy handling and assembly. This is provided in hose that is flat cured and utilizes Koroseal gaskets and special couplings.

THE B. F. GOODRICH CO., Dept. CP,  
Akron, Ohio.

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### why engineers insist on DAVIS DIA-BALL TRANSMISSIONS

Davis No. 168D Float and  
Lever Tank Unit Flange  
mounted with Davis No.  
66B Packless Control Valve



The patented Davis Dia-Ball Transmission is a leak-proof, packless, diaphragm ball transmission arm for Davis Liquid Level Controllers, Float Boxes and Float and Lever Units. Engineers recognize its superiority over the conventional packing box. Here's why: 1) Friction almost eliminated with ball and socket joint, insuring accurate power transmission; 2) Straightlined Power eliminates lost motion, minimizes friction, providing maximum accuracy and sensitivity; 3) Simple construction minimizes maintenance — no leaky shaft or stem packing — no packing box nuts to tighten; 4) Dangers inevitable with volatile or inflammable liquids are eliminated because of Dia-Ball leakproof feature. Write for details.

DAVIS REGULATOR COMPANY

2562 S. Washtenaw Ave. Chicago 8, Illinois



**DAVIS** REGULATOR  
COMPANY

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### DUST COLLECTOR

with Non-Collapsible  
Cloth Screen



You can be sure you won't be troubled by collapse of the cloth screen when you put your dust control problems in the hands of a Pangborn "CH" Collector. The all-steel, rust-proof wire mesh frame uniformly supports the cloth bag so that it cannot sag — no chance for sides to touch with resultant reduction in filtering area and increased resistance to air flow.

It's a Pangborn exclusive — described in free 28-page Bull. 909A, giving complete story on Pangborn equipment which has successfully solved dust problems in over 9,000 installations. Address Pangborn, world's largest manufacturer of dust control and blast cleaning equipment at 281 Pangborn Boulevard, Hagerstown, Maryland.

**Pangborn**  
DUST CONTROL  
PANGBORN CORPORATION HAGERSTOWN, MARYLAND

Turns DUST LOSSES  
INTO PROFITS

When inquiring specify CP 2330 — see handy form pages 2-3

CHEMICAL PROCESSING Preview



Discussed in This Issue - - -

# MACHINERY, EQUIPMENT and MATERIALS

Use this "quick-locator" when you want information on a specific type of machine, equipment or material. Everything discussed in this issue is given here, with page references. After checking the information here, if you want more data you can write manufacturer direct . . . or turn to pgs. 2-3 and use the handy "Information Request Slip." This is a special service provided by the Publisher . . . no obligation or charge, of course. The Publishers contact the proper manufacturers for you . . . information comes to you direct.



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**INDUSTRIAL  
NoDrip**

Anyone can brush, trowel or spray NoDrip on any clean, dry surface. Goes on like plaster, forms a seamless,



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### TRY NoDrip

Apply NoDrip to a small area, compare the results with uncovered portions.

Send for free NoDrip Handbook

J. W. MORTELL CO. 530 Burch St., Kankakee, Illinois

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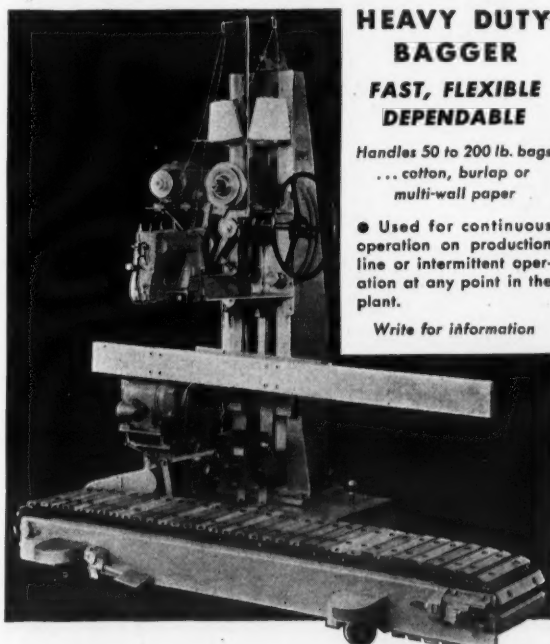
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**HEAVY DUTY  
BAGGER  
FAST, FLEXIBLE  
DEPENDABLE**

Handles 50 to 200 lb. bags  
... cotton, burlap or  
multi-wall paper

● Used for continuous  
operation on production  
line or intermittent operation  
at any point in the  
plant.

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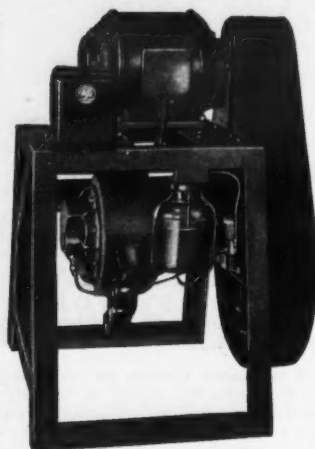
**CONSOLIDATED PACKAGING MACHINERY CORP.**  
BUFFALO 13, N.Y.

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## VACUUM PUMPS

VACUUM TO 0.02 M.M. BAR. 3-580 C.F.M.



## ENDURING

## HIGH VACUUM

**Investigate!**  
**MODEL SWMF.**

**NEW!**

## Continuous Self Purging Principle

**Expels the  
Contaminating  
Influence!**  
PERFORMANCE

**LAMMERT & MANN CO.**

215-21 N. WOOD ST.  CHICAGO 12, ILL.

## A HALF CENTURY



OF SERVICE

TO SCIENCE AND INDUSTRY

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## FLOOR PATCH

**Simply Tamp Smooth . . . Truck Over**  
There's no wait for setting with Flex-Tone's new plastic floor repair material. Simply shovel **INSTANT-USE** into the hole or rut . . . tamp . . . and your floor is restored to total smoothness. Tough **INSTANT-USE** bonds tightly to old concrete . . . makes long-lasting, heavy-duty patch. Withstands extreme loads . . . Keep a drum on hand for emergencies. Immediate shipment. Mail-in Coupon for descriptive folder and details of Special Offer.

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When inquiring specify CP 2334 — see handy f

When inquiring about the 2004–2005 season, the following information was obtained:

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Refrigeration compressors are essential to bring you fresh green peas in the full blush of maturity. After blanching green peas are rushed to freezers. Here compressor maintained sub-zero temperatures freeze them hard as hail. The peas are then put in protective packages and shipped in low temperature cars and trailer-trucks to compressor refrigerated warehouses. Exact sub-zero temperature is held during storage. Refrigerated trucks deliver them to frozen food dealers where they are sold from compressor-equipped cabinets. Your home freezer or frozen food compartment stores them safely. Green peas and other vegetables are also completely processed and frozen by frozen food locker plants. It takes many compressors to deliver fresh frozen peas to your dinner table. Baker compressors help bring luscious frozen vegetables to tables all over the world.

**Baker**

ICE MACHINE CO., Inc., South Windham, Me., and Omaha, Neb.

When inquiring specify CP 2334 — see handy form pages 2-3

-When inquiring specify CP 2335 . . . see information request blank, pgs. 2-3

CHEMICAL PROCESSING Preview



## "That's Interesting"

### Ball Point Pen Inks Use Glycerine

Those who are curious as to the composition of inks used in ball point pens will find the answer, for certain pens at least, in U. S. Patent 2,416,145 granted to L. J. Biro. The ink, or more properly, the writing paste is described as a mixture of approximately equal parts of aniline dye and glycerine, and from 35-40% of tacky dextrine obtained by mixing powdered dextrine with water and heating the mixture. The glycerine, according to the patent, acts as a lubricant for the ball and maintains the writing paste moist at the surface of the ball to effect good writing, and enables the use of the pen for long periods of time on a single filling. Glycerine Facts-Glycerine Producers' Assn.—11 W. 42nd St., New York 18, N. Y.)

### All-Porcelain Enameled Bearing

A New, all-porcelain enameled bearing which lasts 35 times as long as other types has been subjected to extensive tests over a period of six years. The bearing resists all commercial acids, water and greases and can be lubricated with any fluid. It can be used in direct contact with food materials without danger of altering taste, color or flavor. (Porcelain Enamel Institute, 1010 Vermont Ave., N. W. Washington, D. C.)

### Pack Light Bulbs Like Eggs

Next to eggs light bulbs are about the most difficult for purchasers to carry and store. Logically enough a light bulb manufacturer now offers its product in a handy pressed paper carton that provides a depression or "nest" into which each bulb rests securely. (Sylvania Electric Products, Inc., New York 18, N. Y.)

### Oil-Resistant Compound for Splicing Electric Wires

An oil-resistant compound for splicing electrical wire is made of neoprene rubber combined with special synthetics. It is recommended for use on any electrical circuit coming in contact with oil. (United States Rubber Co., Rockefeller Center, New York, N. Y.)

### Compressed Air Utilized in Roughness Testing

A new device that measures roughness and promises to improve quality and efficiency of rubber goods production utilizes compressed air. It measures the resistance to passage of a stream of compressed air between the rough surface being tested and a smooth surface resting upon it. (U.S.I. Chemical News-U.S. Industrial Chemicals, INC., New York.)

For more information on product at right, specify CP 2336 . . . see information request blank between pages 2-3.

# ...THE HAND OF EXPERIENCE holds the answers

The Hand of Experience has at the tip of its fingers conventional designs and intimate knowledge that it adapts and combines to produce specialized products.

This means great savings in experimentation and expense.

In this massive 1000-gallon Dowtherm heated resin kettle—built for the Arco Company, Cleveland, Ohio—Blaw-Knox has adapted and combined conventional designs to produce modified resins of a special nature. The process requires high temperatures, high pressure, and heavy construction throughout.

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6

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at 100,000 lbs./in.<sup>2</sup>).

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